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COLLEGE & RESEARCH LIBRARIES

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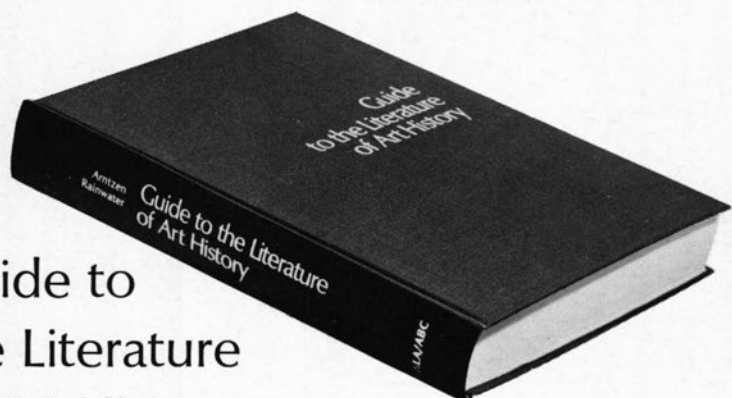
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User Reactions to Online Catalogs: An Exploratory Study

Designers of online library catalogs can benefit from the experience of the first libraries to test public access systems. In this study, use of four such online catalogs was observed. Success-failure rates were compared and user opinions analyzed. Results were consistent in all systems: user reaction was overwhelmingly favorable compared to manual catalogs, and improved subject access was considered the greatest need. Several common problems emerged in the display and access systems.

BACKGROUND

Libraries planning to move to an online catalog in the 1980s hope to use the opportunity to improve upon existing public catalogs. The basic needs of the library's clientele are now being reexamined: what bibliographic information is required, and how information can best be presented and accessed. Unfortunately, much of the information available at this stage to designers of new systems amounts to little more than speculation. User-oriented interface has been a common goal of bibliographic retrieval systems design for more than a decade. The scope of the problem, however, is only beginning to be understood.¹

Among college and university libraries only a few are close to the goal of replacing their manual catalogs with online systems that allow the public direct access. In this study, an exploratory survey was conducted at four institutions to observe user reaction to their fledgling online catalogs, and to determine desirable characteristics for design of such catalogs.

METHODOLOGY

The libraries surveyed included those at Ohio State University, University of Toronto, Guelph University, and Ryerson Polytechnical Institute.* Although the systems and state of development at each library differed, it was thought that valuable comparative data could be gathered by using consistent questionnaires and interviewing techniques at all institutions. The interviewer/observer recorded the purpose of the catalog search, access terms used, time spent, and success/failure. Following the search the user was asked to fill out a brief questionnaire, rating the online catalog compared to other types of catalogs previously used, commenting on a list of desirable qualities for catalogs, and giving personal information about his or her field and level of study.

It was hoped that this approach would produce two results. First, enough statistical data would be gathered to indicate the general approach of users to online catalogs and their success or failure. The latter could then be compared to previous use studies of other types of catalogs. Second, the user evaluation section could provide valuable information

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*Many other libraries were contacted and provided extremely useful information regarding their thinking and planning on the subject, but these four kindly agreed to let a sample of their online catalog users be studied for comparative purposes.

TABLE 1
USES OF PUBLIC ONLINE CATALOGS: LIBRARY A AND B

Library	Known-Item	Subject	Browsing/ Learning System	Circulation Information	Total
A	30 (57%)	16 (30%)	4 (8%)	4 (8%)	53
B	36 (53%)	14* (20%)		18 (26%)	68

*Searches conducted using title file.

about feelings and opinions of users while on-line systems are still in the design stage.

The exploratory nature of this study must be emphasized. A relatively small sample at each library was used to determine if use of online catalogs related to use of older systems as shown in previous studies. This pilot study could also isolate key areas for more extensive research.

It must also be noted that none of the institutions studied claims to offer its users an online catalog. In all four cases the systems were designed for circulation and other purposes, and are only offered to users as additional sources to manual public catalogs. Two have had regular public access to the online file for more than two years, but two allowed direct public access only for purposes of this study. All have most of their collections included in the online database, but none were completely listed at the time of study. Not one advocates that users go to the online source as a substitute for the manual catalog. On the contrary, the limitations are well advertised and known by many online users; however, as shown by the study, a large majority of users found the online catalogs, even in their present, rather crude forms, more convenient than the complete manual catalog.

RESULTS

In the two cases that provide regular public access, primary interest was what the public online catalogs were used for. Both showed similar patterns, i.e., the majority of use was for known-item bibliographic searches (table 1). The greater use of circulation functions in library B may be attributed to the wide range of functions available to the public user in this system. However, substantial use of traditional catalog functions was made in both cases. Of particular interest were the number of subject searches, since in library B, no subject access points were available and in library

A, subject access to the collection was extremely limited.

In the other two libraries circulation features were not yet available for public use. Since these samples were drawn on a random basis from users of the manual catalogs, the type of online search corresponded to what users intended to look for in a more traditional catalog. The results corresponded to a previous user study of the manual catalog done at library C (table 2). The differing use of known-item and subject searches reflects the needs of quite different user populations.

TABLE 2
USE OF PUBLIC ONLINE CATALOG:
LIBRARY C AND D

Library	Known-Item	Subject	Total
C	41 (82%)	9 (18%)	50
D	12 (34%)	23 (66%)	35

Access points chosen by users were similar in the first two libraries having regular public access to online catalog information (table 3). Note that the 20 percent subject searches in library B (table 1) were included in the title access column, since no real subject access was provided. In libraries C and D, where public use of online catalog information was available only for purposes of this study, users demonstrated different choices for access. Most of the known-item searches were attempted first by author, while subject searches were frequently carried out under the title index even when subject term access was available (table 4). Although new users tended to try author access more than experienced users, several of both user groups commented that title access appeared to be more efficient for searching these online systems than author access, especially for common names. The learning process for adapting search strategy to the system appeared to be very quick.

The success-failure rate for searches done

TABLE 3
ACCESS POINTS USED: LIBRARY A AND B

Library	Author	Title	Author/ Title	Subject	Call Number	Bar Code	Total
A	13 (23%)	19 (33%)	8 (14%)	13 (23%)	4 (7%)	*	57
B	16 (22%)	37 (51%)	*	*	10 (14%)	9 (13%)	72

*Not possible in this system.

TABLE 4
ACCESS POINTS USED: LIBRARY C AND D

Library	Author	Title	Subject	Call Number	Total
C	30 (51%)	28 (47%)	*	1 (2%)	59
D	13 (29%)	10 (22%)	22 (49%)	0 (0%)	45

*Not possible in this system.

using all four online systems was comparable to the 60–85 percent range found in previous manual-catalog studies.² Considering the many variables among libraries, the success rate was remarkably similar for three libraries (table 5). Library B's high overall rate may be partly attributed to the inclusion of circulation inquiries, nearly all of which were successful. The figures broken down by type of search show that known-item searches had a higher success rate than subject searches (table 6). This result has not been typical of manual-catalog studies.³ Success in these figures was determined by the user after searching as much as he considered worthwhile. No attempt was made to check the database for the user to determine if items had been missed. The high success rate for both types of searches is somewhat surprising considering the incompleteness of online bases in relation to manual sources. The subject results are especially provocative since the success rate does not appear to relate to the provision of subject file.

TABLE 5
SUCCESS-FAILURE RATE FOR SEARCHES

Library	Percentage of Successful Searches	Percentage of Unsuccessful Searches
A	75	25
B	86	14
C	73	27
D	73	27

Only 7 percent of all users indicated they would look further by checking manual catalogs, while 4 percent said they would try further by browsing on the shelves.

Time spent per search was difficult to compare since two of the systems were used entirely by first-time users, but the pattern was similar to that of manual catalog searches: most searches were quick checks and a few, mainly subject searches, were quite lengthy (table 7).

What was notable was the speed with which many experienced users carried out a known-item check (figure 1). The per-item average for both library A and B appeared to be less than one minute. The median times may appear slower in some cases than in some manual-catalog studies.⁴ It must be remembered, however, that all access points may be searched from one online terminal, and frequently a number of items were checked. In most manual catalogs one must physically move from one area to another to search different items; thus, the search time reported was based on mainly single-item searches.

Users' ratings and comments provided considerable useful data. In rating ease of use, a large majority of users of the established systems A and B rated them easy to use. The majority of first-time users testing systems C and D rated them as fairly easy, but many considered them easy even for the first use. Only eight users of all systems combined considered them to be less than "easy or fairly easy."

In all systems the online catalog was the preferred choice of users over other forms of catalog they had used. The second and third choices varied considerably and appeared to depend on the relative merits of the local version users had encountered (table 8).

Users were asked to make subjective com-

TABLE 6
SUCCESS-FAILURE RATE BY TYPE OF SEARCH

Library	Known-Item		Subject	
	Percent Successful	Percent Unsuccessful	Percent Successful	Percent Unsuccessful
A	74	26	71	29
B	87	13	70*	30
C	75	25	75*	25
D	78	22	70	30

*Searched in title file since no subject file was available.

ments in response to a list of ten qualities. This list of suggested qualities desirable for catalogs was based on previous research by Sigfried Treu.⁵

1. Simplicity (clarity)
2. Order (file arrangement)
3. Completeness (comprehensiveness)
4. Association (connectedness)
5. Accessibility (convenient access)
6. Responsiveness (prompt reaction)
7. Control (manageability)
8. Versatility (variety in modes of access)
9. Reliability (confidence)
10. Support (assistance on demand)

Comments were analyzed for content and for positive, neutral, or negative reaction. A majority of users rated all four systems positively in all ten areas. The relatively few critical comments were helpful, however, and were frequently repeated with regard to all of the systems.

TABLE 7
MINUTES SPENT PER SEARCH

Library	Median	Low	High
A	5	less than 1	30
B	2	less than 1	23
C	5	1	20
D	8	2	30

Simplicity was rated very highly, although all systems' users mentioned the need to be shown how to use the system the first time or to have better instruction sheets. Some

users in all systems had problems extricating themselves from mistakes and backtracking in desired directions. Although most users felt satisfied with the order of the online systems, there were some notable exceptions. The words of one user summarized the general state of file order: "Clear mostly, but bizarre at times."

Incompleteness, i.e., some library holdings not included in the online file, was commented upon by approximately one-third of the experienced users in libraries A and B. On the other hand, nearly all users judged the test systems C and D to be complete based on their one experience.

Experienced users at libraries A and B had a surprisingly good understanding of what was included in the online file, based on library publicity and instruction programs. Without such information it appears to be difficult for users to judge the completeness of a file.

Again, experienced users commented more with regard to association (connectedness) of the file. Most criticism related to problems in subject files or in trying to use title as a subject file. Only one user mentioned a problem of disorientation at not having titles come up in alphabetical order in an author search.

Under accessibility, lack of sufficient terminals and lineups during busy times was mentioned frequently; however, convenient access was rated highly in other respects.

Responsiveness was the most highly rated

TABLE 8
PREFERRED FORM OF CATALOG (1 = BEST)
(AVERAGED RANKINGS)

Library	Card	Microfiche	Microfilm	Book	Online
A	2.4	4.1	3.9	3.2	1.3
B	2.1	2.6	4.1	4.0	1.5
C	3.2	2.8	1.9	4.1	1.5
D	3.3	1.8	3.4	4.4	1.3

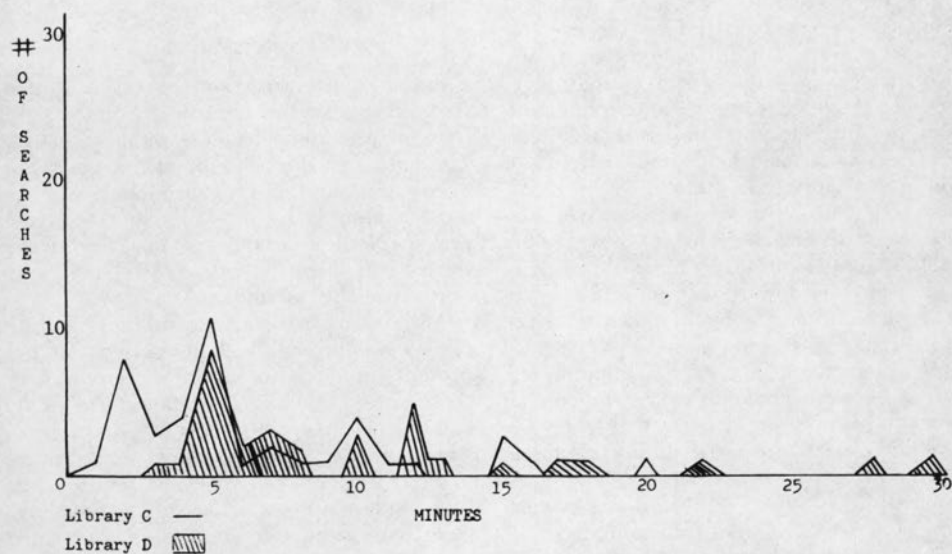
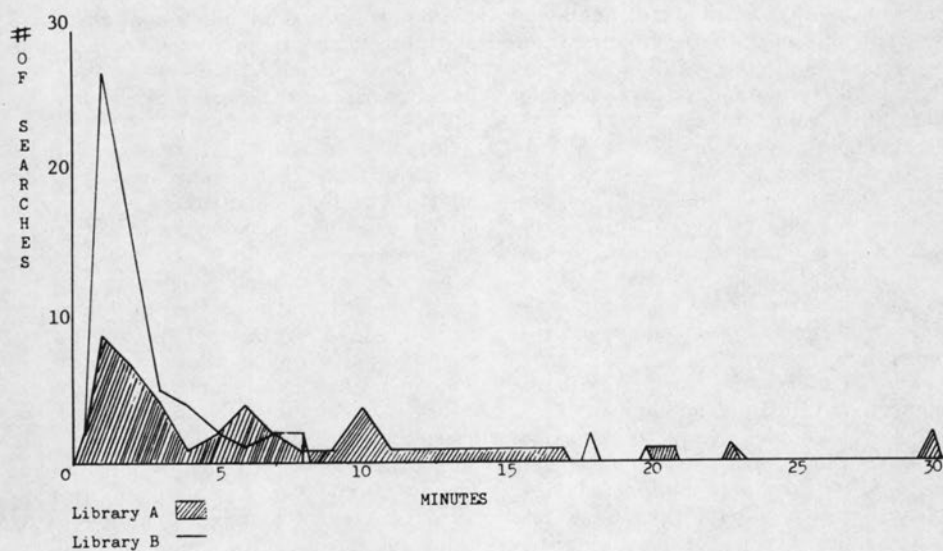


Fig. 1
Time per Search

quality for all systems. A few users complained about computer downtime, but most frequent were comments such as "unsurpassed" and "instantaneous."

Problems with control were mentioned more frequently in the test systems, where all were new users, than in libraries A and B. Nearly all systems elicited requests for good instructional information.

Except for frequent requests for better subject access, all four systems were judged versatile by nearly all users. Reliability was also considered generally very good, although experienced users found some errors, particularly in foreign-language materials. All systems experienced some downtime during the survey, but very few users mentioned that factor in their comments.

Nearly all users were satisfied with the level of support, machine and human.

The survey sample, selected on a random basis from actual catalog users, included a representative group of undergraduates, graduates, faculty, library staff, others, and a cross section of the various disciplines within the humanities, social sciences, and sciences. The analysis did not reveal significant differences in use or reaction by any particular group, with two exceptions. Faculty and graduate students appeared to be using the subject approach less than others, and users in science fields appeared to use title access more than other disciplines. Although the sizes of these subgroups were too small to be statistically reliable, these results would seem to confirm similar evidence from studies directed toward this question.

The general comments of the users were surprisingly consistent. Most were favorable ones: "convenient," "great," "a timesaver," "great because you don't have to run all over the place," "works perfectly."

"Add subject access" or "improve subject access" were by far the most repeated suggestions. Many requested a keyword subject approach. One user summarized: "It doesn't allow a specific subject search—would be a world-beater if it did."

Next most frequently mentioned were suggestions for making the online file complete (adding retrospective material and/or journal information) so that double-checking manual files could be eliminated.

Many users suggested more or improved instructional programs in how to use the system efficiently. Several wanted more terminals and access from other locations.

Some suggested adding periodical articles and abstracts. Others thought commands could be simplified to one key or letter and that Boolean search capabilities should be added.

Several users of the test systems in libraries C and D felt that inability to type would limit use of the online catalog. A few also feared machine breakdown and expressed concern about expense of the new system. It was interesting to note that none of these three concerns was expressed in libraries A and B, where users were already accustomed to public online access.

Requests for more complete bibliographic information about individual items were conspicuous by their absence, although only one of the systems provided as much bibliographic information as is normally provided on a Library of Congress catalog card. Other systems provided abbreviated author, title, imprint, and location information only.

CONCLUSIONS

Based on user reactions observed in this study, it appears that libraries are on the right track in provision of online public catalogs. The online catalogs examined did not seem overly complex for the infrequent user, as most commercially offered databases have proven. Neither did these catalogs lead to the frustrations of the limited-access systems currently available in videotext services.

Author and title access in these online catalog systems, although not perfect, did not present problems for users as significant as those caused by lack of specific subject access and lack of retrospective data. The question of what is needed for good subject access is particularly intriguing and one that requires further study. More specific subject headings were most frequently requested, but some users expressed a need for broader headings than those in the *Library of Congress Subject Headings* list. Boolean search capabilities offered on keywords from the title, corporate headings, and Library of Congress headings have been suggested and seem an attractive possibility. Such a system needs testing to de-

termine if users would find it more successful.

The need for greater subject access varies considerably among the different libraries' user populations. The total of subject searches for all libraries in this study was 30 percent. A similar study conducted at the Library of Congress revealed that approximately 70 percent of its users wished to approach their catalog by subject.⁶ More academic users might search by subject if they had a more useful subject access system. However, the cost of providing such improved access is substantial, and although desirable, will be justified in the present economic climate only if needed by a large proportion of library users.

The need for inclusion of retrospective data or other information not included in the database (e.g., reserve items, journals) was heard wherever such material was lacking. This is another expression of the desire of the user to have one place to search for library holdings. Some librarians have attributed this desire to laziness of modern users or a decline in scholarly methods.

A user's expectation of increased convenience is not surprising, however, given the present technological environment. In any case, it is evident that what is not found in the first place a user looks is often not found or used at all.⁷ Thus, parts of a collection not included in a new online catalog will be ignored by most users and will be an aggravation to the conscientious ones who remember to search further.

Some common problems were observed in the current display and access systems. The major difficulty centered around the question of what to display on the first screen the user sees after inputting his search request. Somehow a balance must be reached between the number of items shown and the amount of bibliographic and circulation information displayed per item. The number of items displayed in the systems examined varied from one item to fourteen. Either extreme meant looking at several additional screens for most searches before the desired information was found. A compromise somewhere between these two meant that many more searches could be ended with fewer steps. No doubt reasonable compromises will be found as libraries

gain more experience with such systems as used by their particular clientele.* Even in the most efficient systems observed, there was a tendency for users to skip the added step needed to find exact shelf information, and instead to find a call number and chance going directly to the shelves.

Although typing ability appeared to have little effect on use of the online catalog, punctuation and spacing, if significant for information retrieval, was a serious problem for new users. Inexperienced users tended not to input commas and spaces until advised to do so. On the other hand, the same users consistently used initial articles when searching by title. Although all systems were designed to disregard initial articles, three showed frequent retrieval problems in this regard. Inexperienced users also frequently tried to correct errors or end their searches by pressing "clear," "rub out," or "erase" keys, sometimes causing undesirable results such as throwing the user off the system completely. Detailed planning for online catalogs should involve a study of the keyboard to be used and elimination of unnecessary and confusing keys.

Filing difficulties were apparent in all systems for voluminous personal authors and corporate authors and common serial titles. These entries have always created filing problems, but may appear worse when several are displayed on a screen together, rather than viewed one by one in a card catalog. Sophisticated Boolean search capabilities might alleviate the problems eventually, but no doubt these will be messy areas in catalogs for some time.

Perhaps the most important conclusion to be drawn from users' written responses as well as observed reactions was that all four online systems, rough, incomplete, and imperfect as they were, were welcomed overwhelmingly by most library users. They

*Libraries that have designed user-interface systems since the four examined in this study have benefited from previous experience. The libraries of Northwestern University, Dartmouth College, Lister Hill, University of Chicago, University of Waterloo, and the National Library of Canada offer good examples of recently designed online systems that were not possible to include in this user survey.

were able to use online catalogs with minimal instruction, with as much success or more in finding items as when using other forms of catalogs. Moreover, users felt the

online catalog was a tremendous improvement in convenience. In the words of one user, the online system is "the best way I know to find books easily."

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The Conception and Birth Pangs of OCLC—An Account of the Struggles of the Formative Years

*The efforts at academic library cooperation that culminated in the creation of the Ohio College Library Center (OCLC, Inc. *) in 1967 really began no later than 1951. At that time a small group of head librarians from one municipal and several private colleges got together to cooperate among themselves so as to improve their resources and services. They were soon joined by others, including their counterparts in the largest state-assisted and private universities in Ohio. It required the strenuous, often agonizing efforts of academic librarians and college presidents, working through the Ohio Library Association and the Ohio College Association, to conceive and deliver OCLC sixteen years later.*

FROM THE PERSPECTIVE OF THE 1980s, it seems almost impossible to imagine contemporary American librarianship without the presence of this multimillion-dollar bibliographic utility which, octopuslike, has spread its tentacles to some 2,400 institutions in all fifty states and Canada. The period of phenomenal growth since 1967 has been well documented in numerous periodical articles and several monographs.¹ The earlier period of struggle to develop cooperative projects among the academic libraries of Ohio has not been so well chronicled. Thus, a few comments by two participants in those earlier years may be of interest.

In a sense, OCLC may be said to be the product of a century of cooperation among Ohio's colleges and universities. The Ohio College Association (OCA) was founded in 1867 with twelve charter members, including both state and private institutions.² The century that followed saw a fivefold growth in membership and a pattern of cooperation at

the institutional level. It was within this general context that the librarians of Akron, Denison, Kenyon, Oberlin, Ohio Wesleyan, and Wooster met in December 1951 and formed a group to explore cooperation among Ohio's academic libraries. At the time, all of these (except Akron, which was municipal) were private institutions—small, good, liberal arts colleges for the most part.

A Joint Committee on Inter-library Cooperation was formed in 1952, with representation from the Librarians' Section of the Ohio College Association and the College and University Round Table of the Ohio Library Association (OLA). The appointment of the joint committee brought several of the state university libraries into the effort, most notably Ohio State University, because Lewis C. Branscomb, director of libraries, was also chairman of OLA's College and University Round Table. Bowling Green State, Kent State, and Cincinnati (then still municipal) followed. Thus both public and private institutions became involved. Discussions centered around the need for a regional union list of serials, a book depository, and lending services—activities somewhat like those of the then relatively new (1949) Midwest Inter-Library Center (MILC), now the Center for Research Libraries. Other ideas included

*Present name is Online Computer Library Center, Inc.

Lewis C. Branscomb is Professor of Thurber Studies, and former director of libraries, the Ohio State University. A. Robert Rogers is dean, School of Library Science, Kent State University.

cooperative purchase and sharing of expensive sets and some linkage to MILC. Ralph Esterquest, then director of MILC, met with the group.

In 1953 the joint committee recommended to OCA that a survey be undertaken to determine to what extent Ohio college and university libraries could cooperate. OCA voted to sponsor the survey, but only if a foundation grant could be secured to underwrite it. The search for foundation funding was not successful, and this delayed the survey for a decade.

Another development of consequence was the formation of the Inter-University Library Council (IULC) in 1953. It consisted of the head librarians of the state-assisted university libraries in Ohio (at that time Ohio State, Ohio University, Kent, Miami, Bowling Green, and Central State). These were among the largest academic libraries in the state and their directors soon became heavily involved in the committee work that preceded the formation of OCLC.

The year 1957 saw a flurry of activity but no lasting accomplishments. A subcommittee of the joint committee (chaired by J. H. Lancaster, Ohio Wesleyan) wrote to Walter Brahm (then state librarian) in support of a new five-million-dollar building to be shared by the state library and the state historical society. Among the expanded services to be expected from the state library were: supplying to college and university libraries the same types of backup in collections and interlibrary loans furnished to public libraries; becoming a repository for infrequently used books and periodicals; promoting cooperative acquisitions among college libraries; maintaining a regional collection of federal and state documents that could relieve individual libraries of the need to retain seldom-used documents; a college library research specialist; photoduplication; coordination of the State Library Union Catalog with other bibliographic services that might become available; and studying the feasibility of a book-exchange program.³ Nothing came of this grand design.

Another abortive effort in 1957 was the attempt to have a survey of Ohio's academic libraries included in plans for a Governor's Commission to Study Higher Education in Ohio.⁴ Perhaps one clue to the failures in 1957 was opposition to a state repository from

within the academic library community. John Nicholson, Jr., of Kent, in particular, was deeply concerned that the budget for such a cooperative endeavor would result in less money for the state-assisted university libraries.⁵

By 1960, matters had begun to take a more positive turn. Nicholson was appointed chairman of the joint committee and was to serve in that capacity for the next six years.

Foundation funding continued to be elusive, but the joint committee made progress in clarifying its ideas and expectations. The emphasis shifted to union catalogs as a basis for cooperation. Rivalry developed between Cleveland and Columbus as to whether the Cleveland Regional Union Catalog, primarily research-library-oriented, or the State Library Union Catalog, primarily public-library-oriented, should be the basis for further efforts. Ralph Esterquest conducted a study in which he recommended that the Cleveland Regional Union Catalog be discontinued on December 31, 1961.⁶ Esterquest thought that a reduced scale of service to Cleveland and northeastern Ohio might be feasible and this was continued for several years.

Accelerated progress came in 1962 when OCA decided to use \$10,000 of its own funds to finance a study to determine the feasibility of several programs of cooperation among Ohio's academic libraries. Wyman Parker, then librarian at Wesleyan University in Connecticut but familiar with Ohio through past service at Kenyon and Cincinnati, was appointed to conduct the survey. He spent two months in Ohio interviewing, traveling, analyzing returns from questionnaires, etc. He made four recommendations:

1. It is recommended that a Bibliographical Center be established by the Ohio College Association for the rapid location and procurement of books through interlibrary loan and purchase. . . .
2. It is recommended that a separate building to house this Bibliographical Center be erected near a large university library. . . .
3. It is recommended that a cooperative purchase program of generous proportions be inaugurated so as to secure as soon as possible a central archive of research materials on microprint. . . .
4. It is recommended that a Director and staff for the center be secured as soon as is practical. . . .⁷

The expenses for the bibliographical center

were estimated as follows: land and building—\$150,000; basic microprint stock—\$150,000; possible annual budget—\$60,000.⁸

In 1963 OCA approved the report in principle and then dissolved the joint committee, which was believed to have accomplished its purpose. It then formed a purely OCA committee charged with "implementation of the recommendations" made in the Parker report.⁹ What could have been a problem turned out not to be. Most of the librarians were involved in *both* OLA and OCA. The new committee consisted of ten librarians, two presidents, and a provost. It was titled the Ohio College Library Project Committee.¹⁰ It was not expected that the presidents and the provost would work actively on the committee, but their appointment was extremely important because of the weight they lent to the implementation of the recommendations. Through these top executives it was possible to have direct access to the powerful OCA Executive Committee. Without this access, it is doubtful the librarians would have succeeded in establishing the Ohio College Library Center. A. Blair Knapp, president of Denison University, was chairman and John Nicholson was executive secretary. Nicholson actually chaired most of the meetings of the committee. He resigned in 1966 and was succeeded by A. Robert Rogers.

The committee sought to publicize its work through OLA, OCA, and the institutional presidents. The latter were especially important in securing consent of college fiscal officers. The remainder of 1963 and the early months of 1964 were spent in study of various automation alternatives. No fewer than eight meetings were held in less than a year. The storm center of debate was whether there should be a microfilm-based union catalog or a computerized one. Proposals were received from IBM, Recordak, Remington-Rand, and Bibliomatics, Inc. After exhaustive review, the committee decided that the two most promising proposals were those of Recordak (microfilm) and IBM (computer). All members of the committee but one favored the Recordak proposal, partly because the estimated cost of initial installation (\$383,683) was substantially lower than that proposed by IBM (\$1,093,700). The advantages of each were listed by the committee as follows:

Recordak

1. Low cost of initial installation.
2. Speedy retrieval of information.
3. Ease of updating.
4. Possible location of three stations within the state.
5. Ease of operation from the operator's point of view.
6. Familiarity among librarians with Recordak film and equipment.
7. Ease of addition of new stations when desired.
8. Possibility of sale of film catalog to other libraries and other states.

IBM

1. Provision of a printed book catalog by author, subject, and title for each member library.
2. Elaborately complete updating process.
3. Complete computer system flexibility for the future.
4. Salability of printed catalogs to retrieve some of the initial cost.¹¹

Because of the different views among committee members respecting the microfilm-based catalog versus the computerized one, the committee made no recommendation on this point in its proposal to the Ohio College Association in April 1964 or to the consultants, Ralph H. Parker and Frederick G. Kilgour, when they met with the committee in September and October of 1965.

When the committee's recommendations to establish a center were announced at the Librarians' Section of OCA, there were strong protests, but a majority voted to proceed. OCA itself cautiously endorsed the proposed center "in principle." Some librarians, opposed to the microfilm-based system, sent letters of protest to the presidents. A report by Verner Clapp, then president of the Council on Library Resources, to the Academy for Educational Development (for the Ohio Board of Regents) recommended that the issue be given more study. By the fall of 1964, it looked as though the whole project was dead.¹² A determined group of library directors in IULC was not about to let this happen. In 1965 they persuaded the OCA Committee of Librarians to accede to what several critics had requested—an appraisal by outside consultants respected in the library field for their expertise in library automation.

OCA agreed with this approach and provided \$2,200, which enabled the committee to invite Ralph H. Parker, then director of

libraries, University of Missouri, and Frederick G. Kilgour, then associate librarian for research and development, Yale University, to review the project and make recommendations. The consultants met twice with the committee in the fall of 1965 and read the considerable amount of documentation which by this time had accumulated. Parker and Kilgour proposed a new approach:

The consultants are convinced that computerization of present library procedures on a piece-by-piece basis cannot be justified. . . .

The present proposal suggests the establishment of a cooperative, computerized regional network in which most, if not all, Ohio college libraries will participate. . . .

The first goal of the system will be to establish an effective, shared-cataloguing program based on a central computer store containing a catalogue for the current holdings of Ohio college libraries. . . .

The second function of the central store would be to provide a catalogue of holdings in Ohio college libraries which in effect would supply union catalogue information. . . .¹³

The Committee of Librarians met in January 1966, endorsed the Parker-Kilgour report in principle, and raised some questions that were subsequently answered by the consultants. Among the more important of these were:

1. Will the machine record-kept catalog at the Center in time make the traditional catalog in each local library obsolescent?

In all probability, the card catalog will become obsolescent in the next 15 years. But an individual library would be able to continue its card catalog with the cards prepared, ready for filing, by the regional center.

2. The Committee wished to re-check with the consultants on the possibility of any very recent developments in the automation field that would affect their thinking in this matter. In particular, the Committee was concerned with the automation schedule of the Library of Congress.

The Library of Congress appears to be progressing rapidly in the design of its over-all automation program.

3. What format will the output in each individual library be? Will it be tape print-out, or card print-out, or will it take some other form?

The output to each individual library can take a wide variety of forms to meet the needs of a particular member. The cataloguing output might be in the form of traditional cards, might be complete catalogs in book form, or might be simply a printed index to the magnetic catalog in the Center.

4. Even though the report states that regional centers are more practical, do the consultants ever envision a time when larger libraries in Ohio would have direct lines to the Library of Congress?

With the type of organization suggested, there would be no reason why a library need have direct connections with the Library of Congress. The regional center would automatically transfer the message to the Library of Congress whenever needed.

5. Why are serials being left out initially?

The consultants have recommended the omission of serials at this time since there are problems peculiar to them both in cataloguing and in mechanization of holdings records.

6. Should contributions by local libraries to the existing state union catalog be discontinued now in view of the possibilities of this project? Individual libraries should consider the question of discontinuing contributions to the state union catalog, but the consultants would prefer not to give a categorical *Yes* or *No* to this question.

7. The Committee is desirous of clarification of acquisitions procedures in connection with the Center. What *specifically* would be the utilization of the Center in acquisitions searching?

The individual library would have instantaneous access to the bibliographic records of all libraries in the Center from all access points now available in the traditional card catalog, from the Library of Congress card number, and from various other points such as date and place of publication.

8. The Committee would like for the consultants to be more specific concerning foundation grants. Which definite foundations might be amenable to the idea of the Center?

The consultants have been of the opinion that specific study grants . . . might be obtained from either private or public sources, for example, the Council on Library Resources, the National Science Foundation, or the United States Office of Education. A grant for system design might be obtained from a combination of these same sources or possibly from Title II B of the Higher Education Act. In some cases granting agencies require that part of the cost of a project be borne by the grantee.¹⁴

In March 1966, the committee endorsed the plan for the Center, commended it to OCA for adoption, and authorized two of its members (Branscomb and Rogers) to meet with Chancellor John Millett of the Ohio Board of Regents to explore the regents' interest in the Center.¹⁵ In April, incoming OCA President Novice G. Fawcett (Ohio State University) asked that information be

disseminated to all presidents and librarians of OCA and this was done, with a view to seeking early endorsements from OCA institutions. By summer, a digest of the consultants' recommendations and a plan for prorating costs for the first two years had also been prepared and distributed.¹⁶

"On October 30, 1966, the Ohio College Association approved The Ohio College Library Center as recommended by the Committee of Librarians, the Committee of Presidents and the O.C.A. Executive Committee."¹⁷ OCA also empowered Presi-

dent Fawcett to appoint a Committee of Implementation with power to: form a non-profit corporation; employ a director; choose a location; make funding arrangements; and develop procedures for appointing a board of trustees.¹⁸

Victory was sweet. The Committee of Implementation and its various subcommittees worked diligently during the ensuing months and by the summer of 1967 the Ohio College Library Center was a reality, with Frederick G. Kilgour as its first director.¹⁹

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Public Terminal Use in an Online Catalog: Some Preliminary Results

The authors have studied the transaction counts from two and one-half years' activity at the public use terminals of the Ohio State University Libraries' prototype online card catalog to determine what search options academic library patrons use the most often and whether this pattern varies from that reported in major catalog use studies. The preliminary findings indicate significant differences in search strategy that may result from a unique user group that prefers to search the online catalog, more useful searches in the online system, or special search patterns imposed by the computer hardware itself. Both the different searches used by patrons and why they choose them should be important factors in the design of future online catalogs.

INTRODUCTION

Academic and research libraries recognize that for a variety of reasons they must now consider new forms of patron access to bibliographic information. Many of these libraries have had extensive experience in automating such internal routines as acquisitions and cataloging; this experience, however, provides little guidance in planning for alternatives to the manual catalog that library patrons can use. For some guidance library planners may turn to the major catalog use studies.¹ There also exist certain studies that analyze user acceptance and use patterns of

commercial online databases.² Both of these may offer only minimal or tangential assistance, though, in predicting how patrons will respond to online or microform versions of the catalog.

Researchers have investigated library patron involvement with microform catalogs at the University of Toronto and the University of Oregon libraries.³ Because few institutions currently have online public-use bibliographic systems, little research has been conducted on how patrons respond to and use computer terminals in searching bibliographic and holdings information. To help fill this gap, this paper analyzes the patron use of the prototype online catalog at the Ohio State University Libraries.

The Ohio State University Libraries has operated its Library Control System (LCS) for nearly ten years. The LCS database contains online holdings and circulation records for all of the 3.5 million cataloged volumes in the libraries' collections (1.5 million titles). The system is used to provide certain types of reference information, expedite order searching, handle general circulation routines, and aid in cataloging new material. In January 1975, a number of computer terminals were put in the main library lobby, so that patrons could use LCS directly without specialist or librarian intermediaries. From that time the number and level of use of these public ter-

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minals has grown steadily. Via these terminals patrons may search all cataloged holdings by author, title, author and title, call number, and browse the computerized shelflist. They may also search by Library of Congress subject headings for items cataloged since August 1977.

In order to understand how patrons have exploited the capabilities of public LCS terminals, the authors have collected data on the use of all public terminals from January 1977 to June 1979. At the beginning of the study seven public terminals had been installed in five library locations; by the end of the study twenty-one terminals were in nine locations.* By the end of 1980, there will be almost one hundred terminals available for use by patrons.

The overall objective of this study was to determine how patrons utilized public terminals and if this use differed in any degree from known patterns of use of the card catalog. The authors hypothesized that the change of mode of access—from search of cards alphabetized in card catalog drawers to keying searches into a computer terminal—would in fact produce a different search pattern. As a result the first specific task of the study was to identify the relative level of use of the available searches. The second specific task was to determine whether the pattern of use changed over time. The third task was to determine whether the introduction of new searches affects significantly the proportion of the various searches.

PROCEDURE

The authors chose to examine patron use of the public terminals for the thirty-month period extending from January 1977 through June 1979 for three reasons. First, the most complete data on patron use of public terminals were available for this period. Second, although additional terminals were installed during the period under study, library patrons had had access to public terminals in

some locations for several years prior to the study, a sufficiently long period of exposure to allow the effects of the novelty of the system to have diminished. Third, certain significant changes and enhancements were made to LCS during this time period that permitted the study of the effects, if any, of the enhancements on the use of the prototype online catalog.

The patrons whose use of LCS is the subject of this paper were self-selected because, outside of specific class assignments, no one is forced to use LCS in place of the card catalog. Those patrons who do use LCS, however, quickly learn how to do the basic searches. Indeed, many come to prefer LCS to the card catalog because of the information LCS provides on the current circulation status and holdings. Informal surveys have also shown that there are patrons who do not like to use LCS and prefer to use the card catalog.⁴ Since public terminals were available in the undergraduate libraries, the main library, some of the graduate reading rooms, and the larger department libraries, a large part of the patron community at Ohio State University was exposed to public-use library terminals and had an opportunity to use them.

All of the terminals studied were cathode-ray-tube (CRT) devices with the exception of one that was a thermal printer. At a number of points in the study, terminals of one manufacturer were replaced by those of others for technical and economic reasons. In any case, all terminals in place during the study had similar keyboards and operational features. Certain terminals, although designated as public terminals, were excluded from the study because their locations or because other factors caused them to receive substantially more use by staff than by patrons.

The authors will not present an extensive description of the operation of LCS since operational descriptions of LCS have appeared elsewhere.⁵ However, the system has evolved to the point where only one such description captures the current state of the system.⁶ Among the features of LCS is the ability to monitor the amount and types of activity on the system. Although these monitoring and report-writing capabilities have not been refined into a full-scale management information system, one of the reports provided the data for this study.

*At the beginning of the study, public terminals were in the main, agriculture, education, engineering, and undergraduate libraries; by the last month there were public terminals in the commerce library, the history, English, and foreign language graduate reading rooms of the main library, and the west campus' learning resources center as well. Nine public terminals were located in a bank near the circulation desk.

This report, the monthly transaction report, summarizes the total number of each type of transaction performed at each terminal during each month. For locations with more than one terminal, whether staff or public, the system provides a summary of the total activity for that location as well. The transactions that are counted for each terminal include all the search commands as well as commands to "turn" the pages of the display. Thus, a transaction is any command that the user enters. Thus, not all commands or transactions represent a search.

Because the authors were concerned with the patterns of searching LCS, they collected data only on the seven commands that demonstrated a choice of search (table 1). The authors chose to examine both the four searches that can be made in the manual catalog—title (TLS), author (AUS and AUT), and subject (SIS)—and three others that have no counterparts in the card catalog.

One of the latter, the combined author-title search (ATS), has no direct equivalent in a manual catalog. It exemplifies the new forms of access that a computerized bibliographic system can provide and was, therefore, included in the study. The shelf position search

(SPS) displays the fifteen items on either side of the call number typed into the terminal. It was included because it resembles an important manual file search, and it provided a crude form of subject access prior to the introduction of LCS subject heading searching (SIS). On LCS a patron may also search a specific call number (DSC) to determine the location and availability of that item. Because of the versatility and utility made possible by this linkage of bibliographic with circulation information, this search was included in the study.

In addition to the information on the types of searches entered by patrons, data on the number of *invalid* commands they entered were also gathered. Commands entered incorrectly or resulting from improper operation of the terminal by the patron are rejected by LCS and counted as invalid. Excluded from the study were housekeeping commands that do not indicate a choice of search. Certain other commands that are used infrequently or can be employed profitably only by library staff also were excluded.

The monthly transaction reports give the frequency counts for the various commands at a given terminal in a given month. The fre-

TABLE 1
SEARCHES, COMMANDS, AND ASSOCIATED SEARCH KEYS

Type of Search	Command	Search Key Formation
Author-Title	ATS	First four letters of author's last name and first five letters of first significant word in the title.*
Exact Author	AUS	Exact spelling and punctuation of author's name as it appears in the author field of the LCS master circulation record.
Truncated Author	AUT	First six letters of author's last name and first three letters of author's first name in the case of a personal author. First six letters of first word in name and first three letters of second word in name in the case of a corporate author.
Call Number	DSC	Exact call number as it appears on catalog card, spine of book, or LCS record.
Subject Search	SIS	Any phrase whether authorized LC heading or not; search will display actual headings used at OSU that fall before and after the input search key.
Computer Shelflist	SPS	Any string of characters whether an actual call number or not; search will display the fifteen actual call numbers on either side of input string.
Title	TLS	First four letters of first significant word in the title and the first five letters of the second significant word in the title.

*A stop list is a list of words that occur with high frequency and thus would form search keys of low precision and high recall; all words on the stop list are not significant and are not used in formation of search keys. The LCS stop list for English language words is used for both the author and title fields of English language records; the stop list for foreign language words operates only on the title field of foreign-language records.

quencies for those commands identified as within the scope of this study (ATS, AUS, AUT, DSC, TLS, SIS, and SPS) and the number of invalid (INV) responses were transcribed from reports and keypunched. The authors then employed the Statistical Analysis System (SAS) to transform the raw frequencies of these commands into percentages of the total number of searches for each terminal for each month. The difference in total transactions among the terminals may vary by as much as a factor of seven due to differences in patron traffic. Conversion of counts to percentages of total transactions offered a method for comparing relative proportions of use from terminal to terminal and month to month. Because LCS provided two distinct types of author search but did not report the total number of author searches in the monthly transaction reports, SAS was used to total the author searches for each terminal in each month and compute the percentage of author searches to total searches as well.

Two other categories were computed as percentages of the total number of transactions (search plus housekeeping) at each public terminal. The first was the percentage that the total of the search commands (ATS, AUS, AUT, DSC, SIS, SPS, and TLS) represented of the total transactions at the terminals studied. Also, the percentage of invalid commands of the total number of transactions was computed to provide a measure of one type of patron failure in using both the search and housekeeping commands.

During the thirty months of the study, new commands and searches were added to LCS. Period I ran from January 1977 through July 1977, the time just before the introduction of the AUT search. Period II bridged the time from August 1977, when the AUT command became available, through May 1978. Finally, Period III ran from June 1978, when the SIS search became operational, to June 1979.

Then SAS was used to compute the mean percentages for each available search for each period. Initially the means for each search for each month were computed to determine if there had been a change in search patterns over time. However, patterns varied from month to month according to the vagaries of the academic year, which masked any significant long-term changes from period to pe-

riod. Computing mean percentages for each search by period smoothed these monthly changes and made the differences from period to period more apparent.

RESULTS

Use data for the public terminals observed during the study indicate these terminals have been well received by OSU library patrons. It is worth pointing out again that patron use of LCS is totally voluntary because the card catalog is still being maintained. Nonetheless, during the thirty months of the study, public terminals recorded 3,687,124 transactions, or almost exactly 20 percent of the 18,365,054 transactions registered by all terminals (public and others) on the whole system. On the average over the thirty months, there were about 128,000 transactions performed at all the public terminals per month, the actual figure increasing as more public terminals were added (table 2). In January 1977 the number of transactions performed at the public terminals was 63,569. In May 1979, the last month classes were in session in the study, the figure was 202,840. This represents a 219 percent increase in use over the period of study.

More than 1,845,000 searches were performed during the thirty months, an average of about 61,500 per month or about 738,000 per year at all the public terminals. These figures include just those transactions that represent a choice of search (ATS, AUS, AUT, DSC, SIS, SPS, and TLS) and do not include invalid responses or housekeeping commands.

In the main library alone, public terminals recorded an average of 84,862 transactions and 42,093 searches per month during the study. On the average approximately 1,018,000 and 505,000 searches were done at the main-library terminals per year. Lipetz estimated manual catalog searches at Yale to be on the order of 320,000 per year in 1969.⁷ Projecting the figures of R. R. Palmer, patrons of the general library at the University of Michigan consulted or searched its catalog approximately 310,000 times during the 1967-68 academic year.⁸ It can be seen that the number of consultations or searches of the LCS prototype online catalog exceeds the use of manual catalogs in two similar research libraries and that the level of use of the public

TABLE 2
NUMBER OF TRANSACTIONS AND SEARCHES, JANUARY 1977 TO JUNE 1979

Date	All Terminals	Total Transactions All Public Terminals	Main Lib. Terminal	All Terminals	Total Searches All Public Terminals	Main Lib. Terminal	Number of Public Terminals
January 1977	485,774	63,596	38,942	191,652	33,496	21,607	7
February 1977	629,821	96,055	61,513	263,494	52,956	36,266	7
March 1977	599,381	79,083	46,135	246,847	46,059	28,513	8
April 1977	572,796	84,774	48,933	254,600	48,370	29,536	8
May 1977	636,101	97,851	60,424	257,910	55,463	35,837	8
June 1977	476,055	51,021	29,817	193,397	28,948	18,517	8
July 1977	432,523	49,980	29,626	182,167	28,694	17,086	8
August 1977	457,038	45,804	26,122	201,203	25,434	14,941	11
September 1977	438,713	68,352	53,300	192,291	38,421	30,218	14
October 1977	688,214	148,387	112,893	298,773	79,250	61,413	14
November 1977	711,364	155,645	113,884	296,676	80,855	59,803	15
December 1977	438,235	59,033	42,987	183,810	32,330	23,412	15
January 1978	557,733	111,197	82,654	241,904	56,089	42,718	15
February 1978	703,550	154,072	115,702	310,961	77,863	58,178	15
March 1978	696,262	132,611	103,134	297,896	69,073	53,496	15
April 1978	692,616	146,872	108,330	304,990	73,594	54,168	15
May 1978	752,257	164,340	122,678	318,146	80,012	59,944	17
June 1978	500,766	82,122	63,230	201,863	40,467	30,688	17
July 1978	528,651	112,227	86,720	225,077	55,289	42,770	17
August 1978	531,236	102,749	80,241	226,986	50,867	39,428	18
September 1978	418,639	112,227	79,583	175,473	54,420	37,272	19
October 1978	768,053	211,585	150,960	316,477	98,883	69,345	20
November 1978	778,401	217,762	151,502	310,080	101,350	69,629	19
December 1978	479,793	84,772	51,712	181,343	42,271	24,644	19
January 1979	731,735	183,606	119,193	292,421	85,138	53,806	19
February 1979	763,878	202,053	137,962	300,278	91,974	61,959	21
March 1979	750,019	167,643	107,943	294,890	76,010	47,529	21
April 1979	737,314	188,205	114,672	292,777	84,499	50,956	21
May 1979	832,533	202,840	132,581	315,453	82,849	55,472	21
June 1979	571,603	110,006	72,503	220,479	51,690	33,646	21
Totals	18,361,054	3,686,470	2,545,876	7,590,314	1,822,614	1,262,797	

TABLE 3
 MEAN PERCENT OF EACH SEARCH BY PERIOD AND
 MEAN PERCENT OF SEARCHES AND INVALID COMMANDS OF TOTAL TRANSACTIONS

Search	Period I	Period II	Period III
ATS	27.8	23.2	20.6
AUS	19.5	8.9	5.1
AUT	N/A	11.9	14.1
Total Author (AUS + AUT)	19.5	20.8	19.2
DSC	18.7	18.8	18.4
SIS	N/A	N/A	4.9
SPS	2.8	2.7	2.5
TLS	31.2	34.7	34.4
Mean Percent of Searches of Total Transactions	55.3	52.3	47.3
Mean Percent of Invalid Transactions of Total Transactions	13.1	12.6	12.2

terminals was limited during the period of study by the availability of terminals.*

When one examines the percentage of use of each search and how it changed over time (table 3), one finds the most striking change in the use of the AUS search. A number of explanations might be offered for its steep drop in use from 20 percent in Period I to 5 percent in Period III. To use this search command the patron must enter the author of an item exactly as it appears in the author field of the LCS master circulation record. A transposition of characters or slight misspelling in the search key means that the desired results will not be obtained.

The nine-character search key of the AUT frees the user from having to spell the author's name exactly. Research findings show that users often approach the catalog with incomplete or incorrect information.⁹ Furthermore, the AUS so reduced the response time of the computer that only one AUS search was permitted at any time anywhere in the system. Most likely as a consequence of its ease of use, the AUT author search appears to have replaced the AUS author search. During the last three months of the study the

AUS stabilized at 2.5 mean percent of the total searches. The sole remaining advantage of the AUS rested in its power to discriminate among corporate and certain personal authors whose names formed AUT search keys that produced great numbers of matches.

The mean percent of total author searching (AUT plus AUS) for each of the three periods did not vary by more than 1.5 percent. This low level of variation from period to period would indicate that while patrons did not alter their overall amount of author searching they did demonstrate a decided preference for an easier, more forgiving author search when such became available.

Patrons used call-number searches (DSC) more frequently than had been expected. In all periods of study, the DSC represented almost one out of five searches at the public terminals. This level of use might indicate that patrons find information on the location and circulation status of library material as important as information as to whether the libraries own the item or not. The authors suspect that it also indicates that a substantial number of patrons are sophisticated enough to combine searching of the card catalog or some other source providing call-number information with searching of LCS. The minimal variation from period to period would suggest that call-number searching represents a basic requirement that patrons would have for an online bibliographic system.

*The number of consultations does not include the informational phone calls to the libraries' telephone center, staffed by twenty-eight half-time positions for 106 hours per week, answering more than 200,000 information and circulation calls per year.

The author-title search (ATS) dropped 7.2 percent in its share of total search choices from Period I to Period III. The greatest drop occurred between Period I and Period II when the AUT was introduced. Offering a more convenient author search may have caused patrons to alter their search patterns. Also, during Period II, serials-holdings information became available on LCS; however, it is not clear to the authors what effect this information might have had on the use of the ATS search.

The subject search (SIS), although the newest search, apparently has met an important need of LCS users despite the present lack of online cross-references and authority control. These capabilities are presently being programmed and should be available online in 1982. As a result of these limitations, library administrators urged library locations not to promote actively the SIS during the time covered by the study. However, use of this search increased without any formal promotion or instruction in its use. The first month that the SIS search was available it represented only 0.45 percent of the searches system-wide; in June 1979 it had climbed to 9.3 mean percent of searches system-wide. For the whole of Period III the SIS search achieved a mean percent of 4.9 percent of total searches.

The health sciences library staff decided that, despite its limitations, the SIS offered enough utility to justify training patrons in its use. In addition, one public terminal in the main library had instructional material on the SIS posted near it as an experiment. Subsequent to instructing patrons in the use of the SIS, one of the health sciences library terminals showed a mean of 12.8 percent of the choices during Period III. At the other public terminal in that library during the same time, subject searching on LCS was a mean of 9.5 percent of the searches. Subject searching at the main library terminal was 8.6 percent of the total searches at that terminal after posting instructions. Prior to that, SIS searching at that terminal accounted for only about 1 percent of the total searches.

Online shelflist searching (SPS) was added to the system in the mid-1970s. The SPS search allows patrons to enter a call number to retrieve abbreviated records for the fifteen items preceding and the fifteen following the

call number that was entered. Because the patron does not need to enter the call number of an actual item in the collection, he can browse the whole collection by using the SPS as a crude subject search. The libraries have never actively promoted the possibilities of this search, which may account for the low level of use of this search at public terminals. During all periods of the study the mean percent of the SPS remained fairly constant and quite low.

In contrast to the findings of some manual catalog studies, the title search (TLS) demonstrated the highest overall percentage of searches during all three periods of the study.¹⁰ Since serials-holdings information was available on LCS after Period I, the authors anticipated a steady increase in title searching as patrons came to rely on LCS for this information. Title searching did increase modestly from Period I to Period II, but it then dropped slightly from Period II to Period III. The availability of the SIS in Period III might have diverted some searches from the TLS, since some patrons had been observed using subject headings as search keys for the title search.

Searches form just a part of the total transactions performed at public terminals. The authors examined whether the overall proportion of searches to total transactions changed during the course of the study. During Period I searches were a mean 55.3 percent of the total transactions, and in Periods II and III, respectively, 52.3 mean percent and 47.3 mean percent. With the exception of the call-number search (DSC) and the subject search (SIS), all the searches required one additional transaction in order to display a record. The subject search required two additional transactions in order to display a record, and the call number search required no additional transactions. The authors have noted that when subject searching became available and was promoted, it achieved a significant share of the total searches. Because subject search requires two additional transactions to display a record, more subject searches will increase the total number of transactions at a faster rate. This may account for the lower overall percentage of searches in Period III. Also, if the availability of the AUT author search caused patrons to be more successful in their author searching, then they

might have performed more transactions to display additional records from their successful author searches.

The authors were also interested in how many invalid commands patrons were entering. A relatively high level of invalid commands might indicate, among other things, that the average person might have difficulty in using terminals to access bibliographic information or that the libraries' training materials were not effective. While efforts to train users increased during the study, more terminals were installed during that time, which meant more untrained users, presumably more error-prone, would be exposed to the system. A tension between these two factors might have caused the percentage of invalid commands to remain fairly constant, with the mean percent of invalid transactions decreasing from Period I to Period III by only .9 percent.

CONCLUSIONS

Three findings of this study may have implications for the design of future online bibliographic systems. First, a significant number of academic library patrons will accept and use an online alternative to the card catalog. The number of transactions performed at the public LCS terminals rose consistently over the two and one-half years of the study. Second, search patterns were fairly consistent despite increased use of the system and an increase in the number of search options. Even the number of invalid commands remained constant. Third, the amount of online title searching differs from that reported in a number of studies of the card catalog. About one out of every three searches on LCS was a title search, whereas about one LCS search in five was an author search. The author search, which the findings of major catalog use studies have shown to be the most favored search,¹¹ was the *third* most frequently chosen search by LCS users. Despite the fact that during the thirty months of the study LCS offered first a search that required the author's exact name and then a more easily used search, the level of author searching remained fairly constant.

The implications of these findings are more fully appreciated when viewed in the light of another finding of the catalog-use studies. Interviews with patrons using the card catalog

showed that 60 percent of them came to the catalog with better title information than author information. In spite of having better title information, these patrons searched more by author in the card catalog.¹² Since it appears that title searching in the card catalog is more difficult, a major advantage of online bibliographic systems may be that they will make title searching viable and in the process will more closely align modes of access to bibliographic information with the ways patrons actually search for it.

This high level of title searching was anticipated; in designing LCS the libraries offered a more precise option for known-item searching, the author-title search (ATS), which it was presumed patrons would prefer. The results of this study reveal, however, that this search currently accounts for only about 20 percent of the searches at the public LCS terminals and that its use has declined steadily throughout the three phases of the study. This search seemed to be the one most affected by the introduction of new, less precise commands, which do not require the user to bring as much information to his search. Perhaps we are seeing here the same phenomenon reported in studies of online systems by Briggs and Kobelski. Writing about users of online databases, Briggs reports:

There are two indications that users are more severely discouraged by too few references than they are by too many. All of the users reporting too many answers still described the search as of some use. But 59 percent of the users reporting too few or no answers found their results of little or no use. Nearly all users reporting too many answers indicated that revisions were in order, but about one-half of the users with too few or no hits felt they did not have time to determine needed revisions or it was not worth the effort, or it was too late to be of help to them.¹³

Kobelski encountered the same responses from users and cites three possible explanations for this reaction: (1) a larger number of citations approximates a printed index that a searcher can browse to feel reasonably confident he has retrieved all relevant citations, (2) the high cost of online computer time in comparison to the very low cost of offline prints, and (3) student willingness to accept and use citations on a related subject along with those of their original topic.¹⁴

Future research in this area will have to

address several major questions. First, are the relatively stable search patterns found in this study independent of the design of this particular system and its community of users, or are they unique to this particular system and its users? Do the users of LCS form a special subset of library patrons employing unique patterns of searching? In other words, does a certain kind of patron with a certain

kind of need for information choose to use the card catalog while another with different needs chooses to use the online system? Finally, do the stable search patterns result from unique design of the LCS hardware and software, or does the physical difference between the card catalog drawer and the computer terminal produce different patterns of searching?

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CHARLES SAGE, JANET KLAAS,
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A Queueing Study of Public Catalog Use

The authors conducted a six-week queueing study of public catalogs in the Iowa State University library system. Data gathered are analyzed primarily to determine if routinely gathered library statistics can validly be used to predict catalog usage, to discover the ratio between the usage of the card catalog and the serials catalog, and to pinpoint the time of peak card catalog usage in order to measure more closely the rate of use. This measurement, then, provides one factor in a simulation model that can be constructed to predict accurately the number of devices needed for an alternative catalog format.

FROM JANUARY 8 through February 18, 1979, the authors conducted a queueing study in which they examined the use of the Iowa State University Library's public catalogs. The study was sponsored by the library's Committee on the Public Catalog and Its Alternatives. This committee was appointed in November 1977 and was charged with studying the present public catalogs and possible catalog format alternatives in light of several challenges facing the library in the next decade. These challenges include managing limited funds, planning and completing a major building addition, considering the use of increasingly available technology, and weighing Library of Congress' decisions to close its card catalog and implement the second edition of the *Anglo-American Cataloguing Rules*.¹

It became evident that knowledge of the actual number of public-catalog users would aid the committee in making confident decisions about the future of ISU's public catalogs.

Few detailed studies had been published itemizing the quantity of catalog users at specific times. Several unique local factors made application of available findings difficult.

Therefore, the Queueing Study Subcommittee, which included the authors, was formed in November 1978 to plan and implement the systematic observation of people using the library's public catalogs during the peak periods of library use. We wanted to determine the extent to which the public catalogs are used, the relationship of public-catalog use to circulation and door-count statistics, and the areas of the card catalog that are most heavily used. Previously at Iowa State, estimation of catalog use had been largely intuitive or based upon questionnaire-survey approaches, which are difficult to evaluate objectively. The Iowa State University Statistical Laboratory offered suggestions for the design of a statistically valid procedure.

The design of this procedure had to take into account the peculiarity that in the ISU Library no serials appear in the card catalog. Instead, serials are listed in a computer-produced book catalog that is distributed to locations throughout the library system. Staff members at public service areas had firsthand, though unmeasured, experience of heavy use of the serials catalog. With the queueing study, we hoped to quantify the use of the serials catalog in relation to the use of the card catalog. In evaluating alternative catalog formats, the Committee on the Public Catalog and Its Alternatives included the possibility of reintegrating serials and monographs in a central, machine-readable system. The existing machine-readable serials records on tapes could form the base of a new

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computer-output microform (COM) or online catalog.

Also, we wanted to test the validity of using circulation and/or door-count statistics as substitutes for actual observation of the number of arrivals at the catalogs. The number of catalog users in a given period of time is one of the variables needed to construct a simulation model that could be used to determine the number of catalog devices (COM or online) needed to serve library clientele efficiently. To complete the model, device-operating times and various hypothetical numbers of devices need to be supplied in order to calculate waiting times.

METHODOLOGY

In an attempt to gather data representing typical catalog use during the quarter, the study was conducted for a six-week period during which no university holidays or exams occurred. Observations were made during the following hours of the library's peak occupancy: 10:00 a.m., 11:00 a.m., 1:00 p.m., 2:00 p.m., 3:00 p.m., 4:00 p.m., and 8:00 p.m., Sunday through Friday (excluding 10:00 a.m. and 11:00 a.m. Sunday and 8:00 p.m. Friday).

The card catalog in the main building contains 565,000 monographic titles described on 3,725,008 catalog cards. Author/title and LC subject heading cards are in two separate files. The physical area is made up of 1,500 square feet containing forty-one 72-drawer card catalog cabinets and eight tables varying in size from two-by-six-feet to three-by-twelve-feet. The annual serials catalog, in book format, contains bibliographic information for 30,000 titles, as well as indexes to these titles by corporate body and subject, and a cumulative supplement.

A total of twenty-nine catalog sites were selected for the study. The card catalog sites included the main library and six special locations (one branch library and five reading room catalogs). Serials catalog sites included five staffed locations in the main library, eleven locations in the main library stacks, and six locations in the branch library and reading rooms.

Ten-minute observation periods were randomly assigned so that each ten-minute period within the designated peak-use hours would be sampled approximately five to six times (once for each day of the week). During

each of the 234 observation periods, the number of patron arrivals and staff arrivals at the card catalog in the main library was recorded. To facilitate the counting of arrivals, the card catalog area was roped off with only one entrance/exit point. At the end of each observation period the location of each patron within the card catalog area was marked on a schematic drawing of the area.

The card catalogs and serials catalogs in the branch library and reading rooms were observed simultaneously during alternate main-library card catalog observation periods. The serials catalogs in staffed locations in the main library were observed during the same alternate periods. Following reciprocal alternate observation periods, one of the eleven serials catalog stack locations was observed. Selection of the site was randomly determined based on the assumption that a sample of the stack locations would adequately represent serials catalog use on the floors and tiers of the main library.

Taking into account that several observation periods were accidentally missed, we collected a total of 2,327 sample counts.

RESULTS

Scatter Diagrams and Pearson's Correlations of Card Catalog Use to Circulation and Exit Counts

Interpretation of the data for this portion of the study began with the hypothesis that a functional relationship existed between card catalog use and three routinely measured and accumulated statistical variables: exit count, books circulated, and number of persons checking out books. If these correlations did indeed exist, we wanted to show how the value of card catalog use could be predicted from data collected in the circulation department and at library exit points.

Scatter diagrams were prepared plotting card catalog use on the vertical axis and circulation and exit counts on the horizontal axis. We applied a common statistical procedure for fitting a line to a scatter diagram, the least-square regression, using the Statistical Package for the Social Sciences (SPSS).² In addition to producing a scatter diagram, the subprogram calculated Pearson's r , r^2 , Significance, Standard Error of Estimate (SEE), Intercept, and Slope.

Table 1, column 1 is the result of plotting

TABLE 1
SCATTER DIAGRAMS AND PEARSON'S CORRELATIONS DATA

	Scatter Diagram 1 Number of Books Charged per Hour vs. Number of Card Catalog Users per 10 Minutes	Scatter Diagram 2 Number of Persons Checking Out Books per Hour vs. Number of Card Catalog Users per 10 Minutes	Scatter Diagram 3 Number of Persons Exiting Library vs. Number of Card Catalog Users per 10 Minutes
Correlation (<i>R</i>)	.19203	.21655	.27460
Standard Error of Estimate	5.31212	5.28443	5.20479
Number of Plotted Values	224	224	224
<i>R</i> Squared	.03687	.04689	.07540
Intercept (<i>A</i>)	8.85120	8.35253	7.76930
Significance	.00196	.00055	.00002
Slope (<i>B</i>)	.02848	.09171	.00593
Missing Values	10	10	10

number of catalog users per hour and number of books charged per hour. Actually, it is difficult to make a visual observation when the absolute value of r is less than .3. In table 1, column 1, $r = .19203$, which denotes little or no relation between the two variables. The variance is explained by r^2 . Examining r^2 one sees that only 3.7 percent of the variation observed in the public catalog use are explained by books charged by hour.

The sample size is sufficiently large ("Central-limit theorem")³ to justify the assumption that the sampling distribution is normal. The standard error of estimate associated with predicting card catalog use is ± 5.31 persons per ten-minute period.

The second comparison of number of persons checking out books with those using the card catalog, as shown in table 1, column 2, indicates a stronger correlation ($r = .21655$) although it is still quite low. The explained variance is only 4.7 percent.

Comparison of the number of persons exiting the library with those using the card catalog is shown in table 1, column 3. Again, r and r^2 are low and indicate little relationship between the two variables.

The numbers of persons exiting the library, persons checking out books, and books circulated fluctuate over a wider range of frequencies than does the number of card catalog users. These fluctuations are reflected in table 1 and illustrate the low correlations.

To further examine the correlation between the variables tested within duplicate time periods, it was decided to offset the hours of comparison so that circulation and exit counts trailed card catalog usage counts.

The greatest increase of correlation occurred with a one-hour differential between number of books charged and number of users at card catalog. The value increases from .19203 (see table 1, column 1) to .47074. The one hour differential explains 22 percent dependence of one variable on the other. Even so, in the best of circumstances, the relationship of card catalog use to books circulated still leaves 78 percent of the variance unexplained.

Determining Arrival Rates by Isolating "Peak of Peaks"

The low correlation between card catalog use and circulation or door-count statistics implies that these statistics are questionable surrogates for catalog use; therefore, it was our opinion that arrival rates at the catalog should actually be observed.

Using the same arrival-rate data as above, we attempted to determine a mean arrival rate that ultimately could be used as a factor to calculate the number of devices for alternate forms of a catalog. Mean arrival rates, broken down by day and by time can be seen in tables 2 and 3. The analysis of variance reveals that the hourly means are significantly different from each other, as are the daily means. It seemed as if disproportionately low catalog use on Friday and Sunday might be responsible for the difference observed among the daily means, so a second analysis of variance was done in which only the Monday through Thursday data were examined. When the Friday and Sunday counts are suppressed, there is no significant difference among the daily means while the difference among the hourly means is accen-

TABLE 2
AVERAGE NUMBER OF ARRIVALS AT THE CARD CATALOG
PER TEN-MINUTE OBSERVATION PERIOD, BY DAY

	Monday	Tuesday	Wednesday	Thursday	Friday	Sunday
\bar{x} :	12.9	12.7	11.9	12.1	9.6	9.8
n:	42	41	40	42	36	30

TABLE 3
AVERAGE NUMBER OF ARRIVALS AT THE CARD CATALOG
PER TEN-MINUTE OBSERVATION PERIOD, BY HOUR

	10:00 a.m.	11:00 a.m.	1:00 p.m.	2:00 p.m.	3:00 p.m.	4:00 p.m.	8:00 p.m.
<i>Including Friday and Sunday</i>							
\bar{x} :	9.7	10.9	13.1	15.8	12.8	8.3	10.2
n:	30	30	36	35	35	36	29
<i>Excluding Friday and Sunday</i>							
\bar{x} :	9.7	10.8	14.2	18.0	14.0	8.8	11.3
n:	24	24	24	23	23	24	23

tuated. These analyses indicate that mean arrival rates remain fairly constant across the four days, Monday through Thursday; however, within each day, arrival rates fluctuate from hour to hour.

In order to determine the *maximum* arrival rate, it was necessary to isolate the busiest times of use at our present catalog. To identify these peaks of all peak-use times, count frequencies were tabulated for the Monday through Thursday data. Observation periods which had an arrival rate of 15.5 or more (this constitutes less than 10 percent of the cases) were identified as shown on figure 1. Despite some scattering of peak-use times, which is to be expected given the small sample size (i.e., each ten-minute period was observed only once for each day of the week), the heavy-use periods cluster between 2:00 and 2:30 p.m. across all four days. We thus hypothesized that the mean arrival rate between 2:00 and 2:30, Monday through Thursday, is relatively constant.

The above time blocks were tested to determine the goodness of fit of the data to certain standard distributions. We had too little data for the 2:00 to 2:30 p.m., Monday through Thursday period to make that determination. Additional data were collected from January 8 through February 18, 1980 (one year after the original study, during a comparable six-week period). Observation peri-

ods were limited to the peak periods of 2:00 to 2:30 p.m., Monday through Thursday. Counts were recorded for each minute, rather than for ten-minute periods, in order to increase the precision of the measure of arrival rate. A total of 690 one-minute samples were recorded. Table 4 shows the average number of arrivals per minute for each of the thirty one-minute observation periods with a mean arrival rate of 1.9 persons per minute over the entire sample.

With some reliance on the literature,^{4,5,6} we compared the distribution pattern of arrivals with a Poisson distribution using the chi-square goodness-of-fit test. In most human situations, arrival rates are not fixed so that there would be a steady, even number of users every minute. The Poisson distribution can be used to predict queueing, given a range of random arrival rates with no dependence upon each other, and an average arrival rate. (The mean arrival rate, Monday through Thursday, is relatively constant.) The results in table 5 show that at the 95 percent confidence level, the observed data follow a Poisson distribution with a predicted arrival rate of 1.9 persons per minute. There is a high probability that one to three people will arrive each minute at the card catalog during peak use periods. This information, combined with the average use time of a catalog reader or terminal and tolerable waiting times dur-

Frequency of Arrivals at the Card Catalog by Day and Time (per Ten-Minute Sample Period).

Fig. 1

(The dotted line at 15.5 isolates the top 10 percent, or the peak of the peak-use periods.)

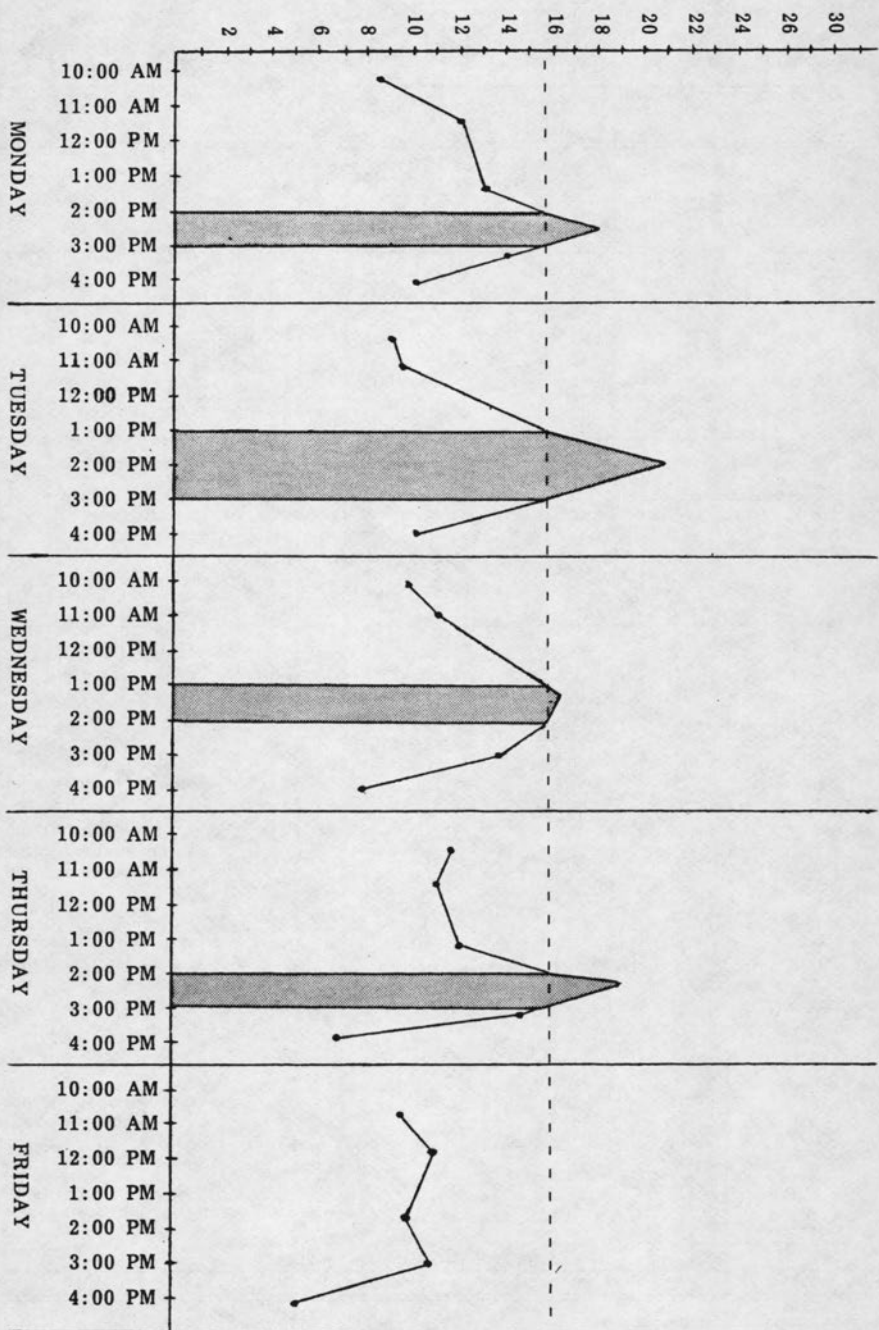


TABLE 4
AVERAGE NUMBER OF ARRIVALS (PUBLIC ONLY) AT THE
CARD CATALOG, PER MINUTE, 2:00-2:30 P.M.

Week		Monday	Tuesday	Wednesday	Thursday	Totals
1	Mean	-	1.73	1.8	1.77	1.77
	Number counts taken	-	30	30	30	90
	Number users counted	-	52	54	53	159
	Standard Deviation	-	.87	1.37	1.36	1.21
2	Mean	1.67	1.3	1.56	2.1	1.66
	Number counts taken	30	30	30	30	120
	Number users counted	50	39	47	63	199
	Standard Deviation	1.37	1.21	1.25	1.49	1.39
3	Mean	2.13	1.5	1.35	1.04	1.31
	Number counts taken	30	30	30	30	120
	Number users counted	64	45	57	46	212
	Standard Deviation	1.57	1.2	1.35	1.04	1.31
4	Mean	2.03	2.23	2.37	1.8	2.11
	Number counts taken	30	30	30	30	120
	Number users counted	61	67	71	54	253
	Standard Deviation	1.27	1.43	1.25	1.21	1.3
5	Mean	2.47	2.67	2.43	2.0	2.34
	Number counts taken	30	30	30	30	120
	Number users counted	74	74	73	60	281
	Standard Deviation	1.38	1.93	1.63	1.49	1.61
6	Mean	2.4	1.33	1.83	1.3	1.72
	Number counts taken	30	30	30	30	120
	Number users counted	72	40	55	39	206
	Standard Deviation	1.8	1.4	1.37	1.06	1.48
Totals		2.14	1.76	1.98	1.75	1.9
		150	180	180	180	690
		321	317	357	315	1,310
		1.5	1.43	1.42	1.3	1.4

TABLE 5
COMPARISON OF THE OBSERVED DISTRIBUTION OF ARRIVALS AT THE
CARD CATALOG WITH THE EXPECTED DISTRIBUTION, ASSUMING A
POISSON DISTRIBUTION AND AN AVERAGE OF 1.9 ARRIVALS PER MINUTE

Number of Arrivals (x)	Probability $f(x)$	Expected Number of One-Minute Periods with x Arrivals	Observed Number of One-Minute Periods with x Arrivals	Chi-Square, Goodness-of-Fit-Test
0	.15	103.5	108	.196
1	.285	196.6	195	.013
2	.27	186.3	185	.009
3	.17	117.3	113	.158
4	.08	55.2	54	.026
5	.03	20.7	24	.526
6 (or more)	.014	9.7	11	.254
Total	.999	(689.3)	690	1.182

TABLE 6A
SERIALS BOOK CATALOG/CARD CATALOG COMPARISON:
SERIALS BOOK CATALOG USE

Location (Number of Copies)	Average Number of Users	Number of Observation Periods	Standard Deviation
Reserve (1)	.50	117	.71
Circulation (2)	2.66	115	1.50
Reference (4)	5.57	116	3.36
Periodicals (2)	4.74	117	2.67
Government Publications (1)	.21	115	.41
Floors/Tiers (11)	3.88	119	6.60
Totals	17.56	699	8.06

TABLE 6B
SERIALS BOOK CATALOG/CARD CATALOG COMPARISON:
SERIALS BOOK CATALOG USE AND CARD CATALOG USE

Location	Average Number of Users	Number of Observation Periods	Standard Deviation (S or $\sqrt{\sum S^2}$)	Standard Error	SE/ \bar{x}
				$\frac{\sum s^2}{n}$	
Card Catalog	11.61	231	5.40	.36	.03
Serials Book Catalog	17.56	699	8.06	.30	.04

ing peak times, can be used to predict the number of devices needed to serve catalog users efficiently.

Serials Book Catalog/Card Catalog: Use Comparison

The distribution of multiple copies of the serials book catalog throughout the library complicated the process of comparing the frequency of its use to the frequency of card catalog use. The comparison was based on the assumption that the many copies of the serials book catalog represent only one intellectual body of information. By combining the use frequencies for all six locations, the total, frequency for serials catalog use was obtained (table 6A).

As previously described, five of the locations observed are staffed locations. The sixth location is an amalgamation of eleven copies of the serials catalog distributed throughout the library stacks. We assumed the frequency of serials catalog use at any of these stack locations would be representative of all eleven locations. Each of the eleven copies was observed approximately eleven times, thus providing 119 samples.

Patron use of the card catalog and total serials catalog use (at sixteen locations, accounting for twenty-one copies of the serials catalog) are shown in table 6B. Again, assuming the sampling distribution is approximately normal, the 95 percent confidence interval for card catalog use suggests that the average frequency of use falls within the range of 10.9 to 11.6 users per ten-minute period. The comparable confidence interval for serials catalog use is 16.95 to 18.2 users per ten-minute period.

The ratio of serials catalog use to card catalog use (calculated from the means) is approximately 60:40. By taking the confidence intervals into account, this ratio ranges between 63:37 to 58:42. These results indicate that the serials catalog is used extensively and

is probably consulted more frequently than the card catalog by patrons, especially in light of the fact that not all copies of the serials catalog were observed in this study.

Placement of Users within Card Catalog Area

Measurements of the placements of card catalog users within the catalog area were accomplished by marking the location of all people inside the roped-off area at the end of each of the 234 ten-minute counting periods.

Though admittedly employing a crude means of measuring catalog-use distribution, we nevertheless extracted from the data some useful information. We counted a total of 2,206 people within the area (an average of 9.4 per count). Of these, 1,136 (51 percent) were located in the author/title section of the area and 1,070 (49 percent) in the subject section as shown in Table 7.

Several surveys have been done which examine the types of catalog searches performed by users. Lipetz found that about three-fourths of all searches are (at least initially) known-item (i.e., document or author) searches.⁷ Tagliocozzo and Kochen found that

TABLE 7
CARD CATALOG USE BY SECTIONS

Section	Users
<i>Author/Title Section</i>	
A-Brown, R (3 units)	162
Brown, S-DIGF (3 units)	144
DIGG-IMPERIAK (5 units)	227
Imperial-New York, Unit (5 units)	191
New York, Univ-Steep (5 units)	215
Steep-ZZ (4 units)	197
Total	1,136
<i>Subject Section</i>	
A-CIU (3 units)	201
CIV-FRID (3 units)	220
FRIE-MASS (3 units)	216
MASSA-Rail (3 units)	210
RAIM-Z (4 units)	223
Total	1,070

approximately 65 percent of the searches analyzed were known-item searches.⁸ It is difficult to compare these findings to the results of this study in light of the different methodology used (i.e., observed user locations as opposed to user interviews). Assuming that the use of a catalog (subject or author/title) provides a rough indication of the type of search being performed, a tentative comparison can be made.

Both of these studies previously mentioned, based upon actual interviews with catalog users, had the advantage of user-status data. From these data, the investigators could see that use of the subject searches declined as the status of the users increased. Underclasspersons tended to perform subject searches proportionately more than upperclasspersons who, in turn, used subject searches more than graduate students and faculty. As expertise grows in a field, the researcher tends to use the more specialized indexes and abstracts to journals and nonconventional report literature and to be familiar with specific authors and titles. Conversely, undergraduates are the group most likely to be searching the subject catalog.

This observation helps to explain the relatively low (51 percent) use of the author/title catalog observed in this study. Iowa State University's graduate and research programs are concentrated in technology and the sciences—areas in which literature searches are drawn principally from journal and report literature. A related factor affecting the use of the author/title catalog at Iowa State is the autonomous serials catalog. A person scanning the indexing and abstracting services or using a computer-generated subject bibliography and locating a particular journal title of interest does not then search for that title in the card catalog (a typical known-document search), but instead locates the title in the serials book catalog. Comparison of serials catalog and card catalog use at ISU, indeed, shows heavier use of the serials catalog. We can, therefore, speculate that the use of the serials catalog lowers the use of the author/title section of the card catalog because of the elimination of serials title searches.

Table 7 shows a more specific breakdown of the distribution of users at the card catalog. Use is fairly evenly distributed throughout

the catalog area, suggesting that no one specific area is used more heavily than any other.

CONCLUSION

The purpose of this study was to collect information and data that would provide a description of catalog use at the Iowa State University Library. Special emphasis was placed on accurate assimilation of actual counts, and we avoided as much as possible any subjective analysis. Every precaution was taken to preserve the statistical integrity of the results, and confidence factors were calculated wherever feasible. The chronology of our study had to be altered when we discovered we did not have enough data to accurately calculate the distribution of arrivals at the card catalog during peak-use times after we had identified those times; however, the additional observations of catalog arrival rates one year later enabled us to verify the assumption that the Poisson distribution provides an accurate portrayal of the distribution of arrivals.

Low correlations between regularly gathered statistics (i.e., circulation statistics and door counts) and catalog arrival rates suggest rather strongly that these statistics are not good surrogates to predict catalog arrival rates and use. As mentioned in the introduction, we did not measure patron service times for primarily two reasons. The first reason was that we could not devise a scheme that was economically practical to implement. We either needed a dozen or more observers or an elaborate video camera scanning arrangement, neither of which we could afford. Second, the determination of card and book catalog service times would provide very little utility. We have seldom had waiting lines form at either the card catalog or at the book catalogs, so under current arrangements little could be done to improve physical access. To use these service times as substitutes for automated-device service times in a queueing model would be in error if one were trying to calculate waiting-time distributions or device-quantity requirements. To complete our queueing model we expect to devise hypothetical service times based on actual online catalogs or COM catalogs operating at other installations.

Another objective of this study was to compare monographic catalog and serials catalog use. The physical separation of these catalogs,

with basically identical access points, gave us a unique opportunity for comparison. The high use of the serials book catalogs (60 percent of all catalog arrivals) points out that a relatively small percentage (6.6 percent) of our total collection of titles is being accessed heavily. This fact, coupled with the fact that active serials experience frequent record changes, indicates that special priority should be given serials when converting to machine-readable form for online access. A less significant but interesting factor is the potential impact this breakdown of usage will have on acquisition decisions and technical processing priorities within the Iowa State University Library.

Initially we had hoped that a delineation of the exact positions of users within the card catalog area would be helpful in the event that the ISU Library administration chose a COM format for our future catalog. Since the use of our divided author/title-subject card catalog was almost evenly split, and because distribution of users throughout the entire catalog area was fairly even, there are two options for the design of a microfilm catalog. The catalog, in film form, could remain di-

vided with an equal number of readers for the author/title and the subject sections; or a dictionary catalog could be produced with each reel containing a set number of records (analogous to the sections of the card catalog containing a set number of cards). These two plans, however, are only feasible with a separate serials catalog.

Two components of our study that are omitted from this paper are a patron-staff comparison of the card catalog use, and a delineation of branch library and reading room card catalog use. This information, we feel, is largely of parochial interest but is available, upon request, from the authors.

The overall results of this study produced a few surprises, but we are satisfied these analyses are valid and will help us make confident decisions concerning the future of bibliographic access to our collection. Obviously certain peculiarities of the catalog system of the Iowa State University Library affected our findings, but application of our methodology should prove helpful to other libraries whose staffs are adapting their catalogs with the new technology.

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The Northwestern Africana Project: An Experiment in Decentralized Bibliographic and Authority Control

The Northwestern Africana Project was designed to demonstrate that a system of decentralized bibliographic-control centers could be an effective method for building a comprehensive, consistent national database for use in a national library network. Utilizing funding granted by the National Endowment for the Humanities and by the Carnegie Corporation, Northwestern sought to show that a high-quality database, that is, one that conforms to Library of Congress cataloging standards and heading usage, could be prepared and maintained at a location remote from LC. This database would be transmitted to a central location (in this case the Library of Congress) for incorporation into a common database and for distribution.

INTRODUCTION

During the 1970s, Northwestern University Library (NUL) engaged in several activities involving cooperative creation and use of machine-readable data. As a COMARC (Cooperative MARC) participant we had observed the difficulties of attempting to ensure uniformity of cataloging standards among disparate cataloging agencies.¹ As the operator, on behalf of the National Library of Venezuela, of a special project in which a single file of bibliographic citations to works about or from Venezuela or by Venezuelan authors was created by consolidating information from multiple sources, we had noted the problems associated with creating a joint database and trying to impose uniformity of citation without the actual works in hand.^{2,3} Our experience with these projects, combined with increased nationwide discussion of a national bibliographic network, led us to investigate ways to test the feasibility of producing a high-quality bibliographic database whose records would be consistent with LC practice, which could be submitted to a cen-

tral agency to form one component of the national data file.

Northwestern's Africana acquisitions provided an ideal body of materials with which to work, not only because they were readily identifiable and self-limiting, but also because of the relatively small number of Africana titles found on MARC tapes compared with other classes of works. Moreover, Northwestern University was already engaged in the collection and compilation of bibliographic information for Africana in connection with the publication of the *Joint Acquisitions List of Africana (JALA)*.⁴ Northwestern's NOTIS (Northwestern On-line Total Integrated System)—a locally developed, integrated on-line computer system encompassing a full range of library services including acquisitions, cataloging, serial control, circulation, and accounting functions—provided the necessary computer support.⁵

The Library of Congress indicated that it would welcome such an experiment, and a project to "establish at Northwestern University Library a national center for the control of bibliographic data relating to African materials as a component in a national library network" was funded by the National Endowment for the Humanities with partial

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matching funds from the Carnegie Corporation. Under its terms, Northwestern was to create and maintain cataloging and location data, both for its own Africana materials and for items acquired by libraries contributing entries to JALA. To assure the quality and consistency of the records, a project member stationed at the Library of Congress would search all titles and entries in LC's catalogs, oversee and code any authority records produced, and "negotiate" any problems with headings with the principal catalogers' offices. Eventually, many of the searching functions were to be carried out by staff at NUL using a cathode-ray-tube terminal (CRT) linked directly to LC's computer. Data created at Northwestern were to be transferred to the Library of Congress on tapes and eventually incorporated into the MARC database and distributed. The project ran from mid-1977 through 1979, at which time it was re-described to focus on cooperative creation of authority records.

The first step taken was to create a database of 24,139 catalog records, representing materials in the Northwestern Africana collection cataloged since 1970. The records were extracted from the central NOTIS database by means of a computer search using location codes. Additional data began to be inputted almost immediately, both as a result of Northwestern's normal and Project-processing routines, and through the input of cataloging copy submitted by JALA contributors.

Another initial step sent the senior Africana cataloger and the head of the Catalog Department to visit the Library of Congress to consult with LC staff on specifications for the cataloging aspects of the project. These meetings resulted in a formal name for the project (Northwestern Africana Project, or NAP) and also brought the first intimations that certain hoped-for components might be either totally unavailable or significantly delayed. It was learned, for instance, that LC would not be able to incorporate NAP records into its MARC database during the project. Additionally, the computer link to LC would be delayed because of the difficulty of acquiring compatible equipment (an appropriate terminal was finally installed and operational on June 25, 1978). Once established, it would afford access only to the MUMS (Multiple

Use MARC System) Master Book File and APIF (Automated Process Information File) and could not access the various databases, such as authorities, that were not yet online at the Library of Congress. (Authorities eventually came up at LC and became available to Northwestern in late 1979.)

It quickly became clear that the Library of Congress' primary interest was in testing decentralized authority control, a matter which was only one of the NAP goals, although also of intense interest to Northwestern. Moreover, LC's internal requirements made the process of cooperating on authorities exceedingly complex.

PROJECT COMPONENTS

As work routines were set and modifications and enhancements to the NOTIS system were developed to meet project requirements, work began to be viewed as being of four types:

Input of Records from Northwestern

Provisional cataloging records for items received by Northwestern but not yet fully processed were selected for transfer to the NAP database according to potential interest or usefulness to other libraries. Records for Africana titles fully cataloged by Northwestern were automatically copied from NUL's central file to the NAP database.

Handling of Contributed Copy

Copy forwarded from cooperating libraries for inclusion in JALA was in card form. Cards were searched against the NAP computer file, new records were input, and duplicates were coded as added locations. Cataloging copy was edited as much as possible for correctness and consistency, while verification of headings was done separately as a part of the authentication procedures described below.

Verification of Headings

Each heading used in a record on the project database was sent to a NAP agent stationed at the Library of Congress. The agent checked each heading against LC's authority files (the Official Catalog) and advised the Evanston staff of the results of the search. All headings on records in the NAP file were made to conform with an established form in the Official Catalog, if one were found. Any

NAP record on which all headings agreed with those in the Official Catalog or established by the project was coded as "fully authenticated." Because a heading cannot be established without the work in hand, contributed records that had any unestablished heading could not receive the fully authenticated coding. Headings from Northwestern's provisional and in-process records were verified and coded as for contributed copy.

During the course of the project, more than 10,000 headings were searched, of which approximately 59 percent were names, 9 percent series, and 32 percent subjects. Of all headings searched, 77 percent were already established in the Official Catalog, and 23 percent were new. More than 95 percent of subjects searched were found, while 76 percent of series and 66 percent of names were already in LC's catalog.

Transmittal of Data to the Library of Congress

Specifications for types of records to be included on the database, special coding conventions, and the format for record transmittal had been settled at the first meetings and in later correspondence. Each quarter, beginning in April 1978, a tape was made of all in-process, provisional, or fully cataloged records added during that period, plus any corrections, updates, or deletions (except where the only correction made was the addition of a location) that had been made in the interval. The selection of records was controlled by a system-maintained record creation or update date in the bibliographic record. Tapes were sent to LC in MARC communications format, using the new spanned-block format that the Library of Congress had requested; were converted by LC's Catalog Distribution Service into the Library of Congress internal format; and were reconverted to communications format prior to distribution.

PROJECT RESULTS AND PRODUCTS

The two most visible products of the Northwestern Africana Project were the computer production of an enhanced *JALA* and the availability for sale through the Library of Congress of the NAP database.⁶ Other results were realized as well, and are described below.

Joint Acquisitions List of Africana

JALA has been published bimonthly for twenty years by the Melville J. Herskovits Library of African Studies of Northwestern University Library. It lists Africana acquisitions of nineteen cooperating libraries. Beginning in 1978 with volume 17, number 1, *JALA* was produced from the NAP database. Records were selected based on a cataloging date included in the holdings record. A modification of the NOTIS card-production program caused the machine generation of a two-column printed format. Other enhancements to the publication included the availability of Northwestern in-process information, the inclusion of multiple-location data, editing of bibliographic data for consistency and for correctness of headings, and regularity of production.

In January 1980, responsibility for production of *JALA* was transferred back to the Melville J. Herskovits Library. *JALA* continues to be computer produced, the database continues to be maintained and, although editing of cataloging and verification of headings cannot be controlled as carefully as before, *JALA* continues to include NUL in-process data and multiple-location information. Additionally, the capability for production and cumulation of specialized indexes or arrangements of entries through computer production is being utilized by G. K. Hall in its publication of annual cumulations of *JALA* beginning with the 1978 numbers.

Distribution of Tapes

Although the Library of Congress was unable to incorporate NAP data into its own MARC tapes, it offered NAP tapes for sale to the public through the Catalog Distribution Service beginning in April 1979. At least two bibliographic utilities indicated that they would purchase a tape subscription, and one of them, UTLAS, announced it would be mounting the tapes on its database in 1980.⁷ Even if there had been no market for these records, the production of tapes would not have been simply an exercise. When the Library of Congress is able to incorporate non-LC records into its MARC tapes, it may be that mechanisms used by Northwestern for selecting and transmitting records to LC will provide a design for inclusion of noncen-

trally produced cataloging in a national bibliographic database.

Decentralized Creation of Authority Records

Throughout the term of the project, NAP staff searched and established names, subjects, and series in LC's Official Catalog. Although the rate of heading production was increasing as the first phase of the project neared conclusion, the actual number of contributed headings was not large. The low total for thirty months' operations of 68 new, 337 retrospectively converted, and 300 corrected name headings; 6 series treatment cards; and 2 topical subject headings is largely attributable to the complex operational procedures that were included in the project specifications. Heading verification and establishment procedures were as nearly identical to those followed by Library of Congress staff as a thousand-mile separation would allow, and this "equality" of approach contributed substantially to the ultimate costliness of the authorities segment of the project. LC catalogers, for example, are not permitted to interpret the presence of a heading on a bibliographic record as evidence that the heading has been established. Similarly, even if a heading has once been verified, the cataloger may not assume that it remains unchanged; the heading must be reverified before being used again. This system of safeguards may be appropriate when a cataloger can actually visit LC's Official Catalog, but when headings must be mailed to an agent for checking, returned to the cataloger for preparation of any required authority records, and mailed back to the agent for second verification and coding, the system is burdensome and far from cost-effective. So long as LC's Official Catalog continued in manual form, however, and so long as the name authorities database was not available to NUL online, LC saw no way in which its procedures could be shortened.

Cumbersome though the process was, the experience of working through an agent and adhering strictly to LC's internal requirements was valuable, so long as it led inescapably to the conclusion that cooperative creation of an authorities database is not financially feasible if all restrictions that apply to LC's own staff, especially including on-site

consultation of a central official catalog, are placed on non-LC authority contributors. Further, the low heading total in no way interfered with the demonstration that high quality, compatible authority work can be performed remote from the Library of Congress as long as all relevant rules and interpretations are available.

Cataloging of Africana Materials

Because of additional project responsibilities taken on by Northwestern's Africana cataloging staff and the difficulty of attracting and holding temporary project staff, it was correctly assumed that even the temporary availability of another professional cataloger would not add to the number of titles fully cataloged by Northwestern for the NAP tapes. Our expectations were more than realized when the project cataloger left after seventeen months. Although we were able to replace some production with a copy cataloger, the amount of original Africana cataloging produced by Northwestern staff suffered. This would not have been a problem as the project was originally envisioned, but as the focus on authority records increased, the limited amount of original cataloging generated was regarded as a regrettable, though unavoidable, condition.

Online Access to the LC Databases

The online access to the LC data files, which was part of the original project design, was intended to be only the first of many such connections to be set up. When congressional action placed a moratorium on the installation of other online connections to LC,⁸ it made NUL's computer link virtually unique in the nation. Because of the stage of development of LC's online system and limitations for its use in authority creation, as well as because of the initial delay in setting up the connection, our ability to query LC's databases online had limited impact on the first eighteen months of the project. Acquisition and installation of the terminal itself (an OMRON) were complicated, and once in place the terminal was plagued by maintenance problems. The eventual development of component word searching,⁹ however, plus the online availability of name authority data and the replacement of the sophisticated OMRON terminal with a

simpler dial-up model, greatly increased the utility of the LC link, and consultation of the LC database is playing an increasing role in NUL's own processing routines. Because of the current limitations on making online hookups available to other institutions, the uses that Northwestern makes of its LC connection will undoubtedly be of considerable interest to the Library of Congress and the library community.

Increased Knowledge and Adherence to LC Standards

Since a major objective of the project was to test whether cataloging of a quality suitable for inclusion in a national bibliographic database could be created in a decentralized manner, it was necessary for Northwestern to have access to LC's internal pronouncements on cataloging policy and practice. Accordingly, Northwestern received copies and continuing updates of several Library of Congress documents. These manuals (*Subject Cataloging Manual*, *Descriptive Cataloging Manual*, and *Rule Interpretations and Official Revisions*), combined with ready access to LC databases through the online computer link, proved a great benefit not only to project staff but to all cataloging personnel.

Of special significance was the availability of information on creation and interpretation of machine-readable authority data. This information assisted us substantially in formulating procedures and setting standards for NUL's subsequent project to convert its manual name, series, and subject authority files to the NOTIS database. The experience continues to be valuable in light of Northwestern's continuing contribution of authority records to the Library of Congress in connection with the Name Authorities Cooperative (NACO) project, a preliminary program for cooperative creation of a national authorities database.¹⁰

Submissions to the Register of Additional Locations (RAL) and National Union Catalog (NUC)

Because of the cooperative links with LC that were established for NAP, and because of Northwestern's machine capability, NUL was asked by the Library of Congress to participate in an experiment to see if LC could accept machine-readable submissions to NUC

and RAL. Two test tapes were submitted, one containing only additional location information, the other containing all types of records. Manual submissions continued to be made in a parallel system. It is our hope that LC will be able to derive the information it needs from these machine-readable contributions, so that in the future NUL and other libraries can report to NUC and RAL in this simpler, more efficient manner.

Program Modifications and Enhancements to the NOTIS System

The NAP database was created as a totally separate file from Northwestern's central catalog, and its holdings information differed somewhat from usual NOTIS structure. Therefore, the existence of Africana data on a separate file did not make the maintenance of Africana records on the main file unnecessary. Because of the requirement for keeping nearly identical records on two separate files, and in order to avoid duplicate keying for input, a mechanism was developed for copying data from one file to another. The procedure, which was perfected early in the project, was crucial to NAP and has been of considerable use in other NUL processing activities since its implementation.

In addition to development of file-to-file copying, NAP required several other additions or alterations to be made to the NOTIS system and its programs. Although the work was originally done for NAP, its benefits have extended beyond the project. The several programs for selection of records for transmittal or transfer are of continued use, and programs controlling the machine production of JALA are being used in connection with a variety of other ongoing programs.

Machine-to-Machine Transfer of Data

Soon after the project began, it became apparent that a very costly component of our activities was the keying of contributed cataloging data into the NAP file. Since most of the copy was already in machine-readable form in another database (OCLC, RLIN, or LC), investigations were made into the possibility of receiving contributed copy in machine-readable form either from an institution's archival tapes or through machine-to-machine transfer of data. Although represent-

atives of OCLC and the Research Libraries Group (RLG) expressed interest in development of machine-to-machine data transfer, the limited duration of NAP did not enable us to carry negotiations to a point where an experiment could be carried out. Northwestern continued its own investigations, however, and RLG's professed interest in developing this capability played an important part in NUL's decision to join that partnership.

Subsequent to the project's end, the Council on Library Resources funded a joint project of LC, RLG, and the Washington Library Network (WLN) to address the problems of sharing authority data among databases in an online mode as a requirement for the formation of a national authorities database.¹¹

CONCLUSION

The Northwestern Africana Project was designed to test a method for creating a consistent national bibliographic database. Because of LC's inability to incorporate non-LC data into its own MARC tapes the test could not be completed. Despite the absence of the final step, the project still touched on and influenced several vital issues leading to such a database. The coordination, selection, and submission of bibliographic records to the Library of Congress; the test of machine-readable tape submissions to the *National Union Catalog* and the *Register of Additional Locations*; the discovery of the value of LC's internal manuals; and the usefulness of having an online link to the Library of Congress computer system are all of national interest.

Probably the most important part of the project, however, was the experimentation in methods for cooperative creation of authority records. The experience of NAP not only showed that high-quality, consistent authority work can be performed in a decentralized manner, but also confirmed that successful creation of a consistent national bibliographic

database depends heavily on the successful and efficient sharing of authority data.

On January 1, 1980, the Northwestern Africana Project took a dramatically different turn as remaining funds began to be used to support telecommunications costs and training for Northwestern's participation in LC's newly begun Name Authorities Cooperative Project. There is no way to know to what extent the Library of Congress' experience with Northwestern influenced the design of NACO, but it undoubtedly had some impact. We are pleased to note that the requirements for authority creation and verification that were most irksome in NAP have been modified or eliminated from the new venture. On-site consultation of LC's Official Catalog is no longer required, and participants may assume that a heading that appears on an LC bibliographic record has been established. Additionally, staff at participating libraries have full responsibility for preparation of authority records, while central LC staff perform only the same sort of review given to LC-based catalogers. Even if no program for decentralized authority creation had continued after the cessation of NAP, the lessons of the project would have been valuable to learn. It is extremely satisfying, however, to see the emergence of this program that is intended to be a prelude to eventual cooperative creation of a national authorities database, and to have been asked to be one of its first participants.

NAP had its share of frustrations, but difficulties encountered were all superable, and we can regard the completed phase of the project with satisfaction, feeling that we have contributed in several important ways not only to the field of Africana scholarship through the dissemination of bibliographic information, but also to the field of librarianship through our work to create a high-quality compatible database at a location removed from the Library of Congress.

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Cataloging and Classification Practices in Community College Libraries

Results of a questionnaire survey sent to a sample of community college libraries in the United States indicate that as these libraries enter the 1980s their collections are still traditionally organized. Although audiovisual materials are now cataloged and classified, there is little agreement as to how they should be organized; and most audiovisual materials are still housed in closed-access areas. Change to AACR2 seems to be accepted, but librarians are still undecided about participating in computerized cataloging networks.

TWO RECENT STUDIES have shown that the majority of community college libraries are now using the Library of Congress classification system for the organization of printed materials.¹ This is a marked increase from the results reported in earlier studies by Rowland and Taylor.² The dates of these studies indicated the need for additional research, not only on the cataloging and classification of books but also on the classification of pamphlets, government documents, periodicals, microforms, and audiovisual materials in community college libraries. How are these materials cataloged and classified? Is there an indication that audiovisual materials are completely cataloged and classified in community college libraries? Is color banding of catalog cards for audiovisual materials still being done? How are audiovisual materials shelved? In light of the emphasis on the integration of all materials into learning resource centers of community colleges, are audiovisual materials being intershelved with printed materials? What use is being made of computerized cataloging networks? What is the composition of technical service staffs? How much original cataloging is done?

These problems prompted the develop-

ment of a questionnaire designed to elicit answers to several research questions. The questionnaire was developed and criticized by two community college librarians, one from Illinois and one from New York. A pilot study was completed by sending the questionnaire to ten librarians in community college libraries that this author had visited on sabbatical leave in 1975-76. Based on criticisms and suggestions from nine of these librarians, the questionnaire was revised and then sent to a random sample of 100 community college libraries in the United States.

Prior to sending the questionnaires out, this research proposal was submitted to the Carbondale Committee for Research Involving Human Subjects. The committee found the subjects to be not at risk and approved the research proposal on November 16, 1978.

The sample of 100 libraries was randomly selected from the 1978 *Community, Junior, and Technical College Directory* published by the American Association of Community and Junior Colleges. Membership in that organization is not a criterion for inclusion of the names of two-year colleges. The *Directory* includes all institutions that are community-based community, junior, and technical colleges. Institutions are nonprofit, are organized on a two-year basis, have regional accreditation and/or state recognition, and offer two-year associate degree programs.

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Proprietary institutions are not included. Individual campuses are listed but not community centers. A total of 1,235 colleges are included of which 1,215 are in the fifty states and the District of Columbia. The total population size for this study is therefore 1,215. The sample size of 100 represented 8.23 percent of the total population.³

Because of a long-standing interest in community college libraries, each college in the sample was sent, in addition to the questionnaire, an information sheet that included data from the 1978 *Directory* for revision and correction, a request for the name of the person to whom future questionnaires could be sent, and a question as to whether the institution would be willing to pay the postage on return questionnaires.

In the cover letter, it was explained that this would be the first questionnaire in a longitudinal study of community college libraries, and that in the future the college might expect to receive additional questionnaires (but no more than one a year) from doctoral students or from this researcher. Participation in the project was requested and if the library was willing, the following primary documents were solicited: college catalog, campus map, a sample copy of the college newspaper, the library handbook, a recent library annual report, the library organization chart, a sample library budget, the library floor plan, a sample copy of the library newsletter, the materials selection policy, a periodical list, and an audiovisual catalog. Librarians were informed that they could withdraw from participation at any time.

The questionnaire was divided into six sections: cataloging and classification of printed materials, cataloging and classification of audiovisual materials, the catalog, shelving of audiovisual materials, computerized cataloging networks, and cataloging and classification staff. There were thirty-three questions on four pages. The questionnaire was mailed on April 2, 1979. By June 7, fifty-two questionnaires had been returned. Two of those returned were not completed. Two of the libraries were deleted from the sample population; one college was served by a local public library and one by the university library in the same city. There were forty-eight usable questionnaires, 48.98 percent of the sample population of ninety-eight. Forty-six of the

persons completing the questionnaires indicated that they would be willing to participate in further studies. Questionnaires were returned from every regional division in the United States with ten returns from the South Atlantic states and ten from the Pacific states. (See table 1.)

TABLE 1
USABLE QUESTIONNAIRES BY DIVISION IN THE U.S.

Regional Divisions*	Number of Colleges	Usable Questionnaires	Percent
New England	83	1	1.20
Middle Atlantic	108	2	1.85
East North Central	220	5	2.27
West North Central	123	9	7.32
South Atlantic	234	10	4.27
East South Central	100	5	5.00
West South Central	107	5	4.67
Mountain	69	1	1.45
Pacific	171	10	5.85
Total	1,215	48	3.95

*U.S. Census Bureau divisions as reported in "Population of the U.S., 1960-1970" in *The World Almanac & Book of Facts 1980*, p.191.

Although thirteen libraries have switched from the Dewey Decimal Classification (DDC) to the Library of Congress Classification (LCC) since 1965, the number of two-year college libraries using LCC for books is not greater than the percentage reported in the Matthews study of 1972. In fact it is somewhat less. This study showed 52.08 percent using LCC for books, while the Matthews study reported 56.4 percent using LCC. DDC is favored for audiovisual materials by thirteen libraries, or 25 percent, but a wider variety of classifications is used for audiovisual materials, and sometimes a library uses more than one classification system for these materials. Eleven libraries use LCC with one of these using a modified LCC; ten libraries use an accession number and fourteen libraries use a format designation and accession number for audiovisual materials. One library assigns a course number to audiovisual materials, as evidently all audiovisual materials are used by students for classroom assignments. One library developed its own classification system for audiovisual materials, another library uses the ANSCR (Alpha-Numeric System for Classification of Recordings) for sound recordings, and one library reported that all audiovisual

materials were kept in the department. (See table 2.)

Of the thirteen libraries switching to LCC, six started this reclassification between 1965 and 1969, four began reclassifying between 1970 and 1974, and three did not indicate when reclassification was begun. Eleven libraries have completed reclassification: three in the same year that it was begun, four within one year, one in two years, and another in four years. Two did not indicate how long the reclassification took, and two libraries are maintaining both DDC and LCC as the reclassification project continues.

Of the twenty-five libraries using LCC, sixteen are using PZ3 and 4 for fiction in English. One library uses these numbers only for authors who do not have specific numbers in the literature classes, and another library is shifting its materials out of PZ3 and 4. Nine libraries are not using PZ3 and 4. One library classifies fiction in hardback copies, but assigns the letter *F* to paperbacks.

Fiction and biography receive special classification treatment in public libraries. This is also true of fiction and biography in two-year college libraries. Although twenty-six libraries classify fiction in DDC or LCC, thirteen libraries simply assign the letters *F* or *FIC* to fiction; eight libraries use the author's last name to arrange fiction; and one library uses a Cutter number to arrange fiction.

Many libraries treat biography in more than one way. Thirty libraries arrange indi-

vidual biographies in classified order by subject, ten libraries use 92, one library uses 921, seven libraries use the class numbers 920.1-928, and five libraries assign the letter *B* to biography.

The Library of Congress subject headings are overwhelmingly favored for both book and audiovisual materials with one library using both lists; forty-three libraries use LC subject headings for books and forty-one use LC subject headings for audiovisual materials. (See table 3.)

Only for periodicals was there total agreement on arrangement. All forty-eight libraries in the sample arranged periodicals alphabetically by title. Microforms, government documents, and pamphlets were organized in a variety of ways. In forty-five libraries, microforms were arranged in special cabinets or drawers by title or author; one of these libraries used an accession number for arrangement. Several libraries used more than one arrangement for microforms. Six libraries intershelved their microforms; the majority of these libraries were intershelving periodicals on microfilm with their bound periodicals. One library arranged microforms in a special location by call number. Government documents were cataloged and classified in the same way as books, pamphlets, and periodicals in forty-one libraries; five libraries organized their government documents by the Superintendent of Documents classification system. One library used both of these meth-

TABLE 2
CLASSIFICATION SYSTEMS FOR BOOKS AND AUDIOVISUAL MATERIALS

Classification	Books		Audiovisual Materials	
	Number	Percent	Number	Percent
DDC	23	47.92	13	25.00
LCC	25	52.08	11	21.15
Accession number			10	19.23
Format and accession number			14	26.92
Other			4	7.69
Total	48	100.00	52	99.99

TABLE 3
SUBJECT HEADING LISTS FOR BOOKS AND AUDIOVISUAL MATERIALS

Subject Heading List	Books		Audiovisual Materials	
	Number	Percent	Number	Percent
Sears	6	12.24	6	12.24
LC	43	87.76	41	83.67
Other			2	4.08
Total	49	100.00	49	99.99

ods. Two libraries did not respond to this question, and one library reported that it did not receive any government publications.

There was more variety in the organization of pamphlets. Career pamphlets were arranged in vertical files by name of occupation in seventeen libraries, in boxes on book shelves by name of occupation in two libraries, by SRA (Science Research Associates) numbers in two libraries, by DOT (Dictionary of Occupational Titles) numbers in one library, and in binders by call number in one library. Two libraries did not respond to this question, and twenty-three libraries reported that the career pamphlets were in a separate career-counseling center in the college. Other pamphlets were arranged in alphabetical order using LC subject headings in thirty-one libraries and using Sears subject headings in five libraries. Many libraries used more than one system. Five libraries used the *Readers' Guide to Periodical Literature* for pamphlet subject headings; and one library used Miriam Ball's *Subject Headings for the Information File* (8th ed.; New York: H. W. Wilson, 1956). Two librarians did not respond to this question, and two librarians reported that they did not maintain a vertical file of pamphlets. Two librarians developed their own subject headings for pamphlets, one library used a numerical arrangement, one put them in boxes on shelves, and one cataloged them. If librarians used a standardized list of subject headings for pamphlets, they often added local subject headings on demand.

Both AACR1 and AACR2 were used as cataloging codes for books and audiovisual materials. A surprising number of libraries (sixteen) had already adopted AACR2 for books. (See table 4.)

Some libraries used more than one cataloging code for audiovisual materials. Librarians were asked whether they planned to switch to

AACR2; nine said yes, five said no, fifteen were undecided. Three did not answer this question, and the sixteen previously mentioned were already using AACR2. The four "other" answers to the question regarding catalog codes for audiovisual materials included one library that used *Nonbook Materials* by Jean Weihs (2d ed.; Ottawa: Canadian Library Association, 1979), one library that did not catalog those materials, one that reported that all audiovisual materials were kept in the subject department, and one library that simply checked "other" without specifying what arrangement was used.

Two libraries reported both a book catalog and a card catalog, but most libraries (forty-six) still have a card catalog; three have a book catalog, and one reported having a COM catalog. Of the forty-eight libraries, twenty-one arrange catalog entries in dictionary order, seventeen have a divided catalog (sixteen divide their entries into author/title and subject order; and one library uses author and title/subject arrangement), nine libraries use a three-way divided catalog, and one librarian checked "other" and indicated that arrangement was by DDC.

Cataloging of audiovisual materials does not approach the same consistency of arrangement of entries as the cataloging of book materials. Many libraries use more than one arrangement for their audiovisual materials, but twenty-four libraries do full cataloging with data interfiled in the central catalog; eight libraries do full cataloging but file the audiovisual entries in a separate catalog near the central catalog; one library does full cataloging and files the entries in separate drawers of the central catalog; six libraries do full cataloging but file the entries in a separate catalog in the audiovisual center; and nine libraries do full cataloging and file entries in both the central catalog and in a separate

TABLE 4
CATALOG CODES USED FOR BOOKS AND AUDIOVISUAL MATERIALS

Catalog Code	Books		Audiovisual Materials	
	Number	Percent	Number	Percent
AACR1	26	54.17	19	38.00
AACR2	16	33.33	14	28.00
AECT Standards, 4th ed., 1976			5	10.00
Other			4	8.00
Not answered	6	12.50	8	16.00
Total	48	100.00	50	100.00

catalog in the audiovisual center. Three libraries use computer printouts for the recording of audiovisual materials, and this allows them to send copies to departmental offices and to branch libraries. Five libraries issue a mimeographed list of audiovisual materials, and seven libraries use a printed list (sometimes this printed list is sent to faculty members only). Two libraries do not catalog audiovisual materials.

The identification of audiovisual materials in the catalog takes many forms. Again, more than one form may be used by a single library. Three designations were equally favored. Eighteen libraries use symbol designations, another eighteen use the medium designation, and eighteen libraries use a color code or color banding. Two libraries use a medium designation in the body of the card similar to, or according to, the general material designation recommended by AACR2. Two libraries reported using no designation. Of the eighteen libraries using a color code or banding, fifteen indicated the colors used, while three did not. It was difficult to bring order out of these patterns, as there seems to be no consistency as to which color code or banding is used for which medium. Six libraries used one color to designate audiovisual materials, but there was no agreement on the color—two used red, one used blue, two used green, and one used orange. One library used blue for audio materials, and green for visual materials. One library used eleven different colors; after running out of single colors, stripes were used. One library used ten colors; in addition to a two-color stripe, wide and narrow, single-color stripes were used. Instead of using color banding for media designations, one library used colors to indicate subject areas in the library: red for humanities, light blue for social sciences, dark blue for business and science technology, brown for industrial technology, and green for natural sciences. The application of a color code or color banding seems fraught with difficulties, given the multiplicity of formats and subjects.

One librarian reported that all audiovisual call numbers were headed with a W, followed by a medium designation and the call number, such as WKT LB2735.F6. Another library used a format designation plus the year acquired and an accession number, i.e.,

FS/TC 75-167—a filmstrip with a tape cassette acquired in 1975 as the one hundred sixty-seventh filmstrip received that year.

One librarian stated: "At one time, we used color codes and abbreviations for the various forms of AV materials. We also used sequential numbering for each medium, e.g., AT10—audiotape—tenth tape to be added to the collection. We now assign LC classification numbers and use the same color card that we use for books. We are considering going back to using color-coded cards because our students often ask for a list of audiovisual materials owned by our library. It will be easier to access this information if we used a color-coded system."

The shelving of audiovisual materials presents many problems because of the varying sizes and shapes of these materials. Librarians do not agree on shelving patterns, and in many cases they use different patterns to shelve different types of materials. All audiovisual materials may be on closed shelves or in a closed area with the exception of sound recordings, which might be in open bins for browsing. All audiovisual materials might be intershelved with book materials with the exception of 16mm films. Among the libraries that responded to this survey, thirty-nine reported that audiovisual materials were in a closed area (twenty-six on closed shelves and thirteen in closed cabinets) but in some cases this area was open to faculty members, and twenty-four reported that audiovisual materials, or at least some of them, were in an area open to faculty and students (nineteen kept these materials on open shelves and five kept them in open access cabinets or drawers). One librarian reported that these materials were kept in the subject department. Of the libraries that shelved these materials in open areas, six intershelved audiovisual materials with books, twelve separated them by format or medium, and eight separated them by classification number. One librarian did not respond. Although it seems that there are more exceptions for the shelving of audiovisual materials, it must be remembered that there are also exceptions for printed materials because periodicals, government publications, and pamphlets are shelved in special ways. The more patterns of arrangement of materials by format or by the package in which materials are organized, the more difficult it becomes

to try to gather together all the materials that a library owns on one subject.

Librarians were asked about their participation in computerized cataloging networks. Although two librarians did not respond to this question, thirty-nine reported that they did not participate in computerized cataloging networks. Two of these libraries were using commercial processing services and two received their cataloging from a centralized technical service operation for the district. Only seven libraries were participating in computerized cataloging networks, six of them with OCLC and one with WLN (Washington Library Network). Librarians were asked if they were planning to participate in such a network; twenty-three said no, seven said yes, eight were undecided, and three did not respond.

The final section of the questionnaire included questions regarding cataloging and classification staff, numbers of materials added, and percentage of cataloging copy from original and commercial sources. Most of the forty-eight libraries responding reported that they had only one full-time professional cataloging person; nineteen libraries reported one professional, and fifteen reported one paraprofessional staff. Another twenty reported none, or less than one, professional staff, and sixteen reported none, or less than one, paraprofessional staff. Four libraries reported two professionals, and one library reported three professionals. Four did not report their professional staff. Fourteen libraries reported more than one paraprofessional staff, and three did not respond to this question. (See table 5.) Of the forty-eight libraries, twenty reported no weekly hours of student workers, nine reported one to ten

hours, ten reported eleven to twenty hours, four reported twenty-one to thirty hours, and two reported forty-one to fifty hours. Three did not respond to this question.

On a monthly basis, libraries added more books than audiovisual materials to their collections. Five hundred books or fewer were added monthly by thirty-three libraries; thirty-one libraries added 100 or fewer audiovisual items. Several librarians reported that they did not keep these statistics, and five librarians did not respond to this question. (See table 6.)

More original cataloging was done for audiovisual materials than for book materials. Only three libraries reported doing 91 to 100 percent original cataloging for books while twenty libraries reported doing 91 to 100 percent original cataloging for audiovisual materials. Ten libraries reported that they did not record this data. (See table 7.) Librarians were asked if they had done any studies on cataloging costs; three said yes and forty no. Two were in the process of completing cost studies, and three did not answer this question. One librarian reported that a study had been done a number of years ago but was no longer valid.

The cataloging and classification practices of typical two-year college libraries as they entered the 1980s can be summarized as follows: book collections are classified by either the Dewey Decimal Classification system or the Library of Congress Classification system, and audiovisual materials are classified in a variety of arrangements. Library of Congress subject headings are used for both books and audiovisual materials. Periodicals are shelved in alphabetical order by title. Microforms are arranged in special cabinets or drawers by

TABLE 5
CATALOGING AND CLASSIFICATION STAFF IN FTE (FULL-TIME EQUIVALENT)

FTE	Professional		Paraprofessional	
	Number of Libraries	Percent	Number of Libraries	Percent
None	4	8.33	5	10.42
Less than 1	16	33.33	11	22.92
1.00	19	39.58	15	31.25
1.50	—	—	5	10.42
2.00	4	8.33	5	10.42
2.50	—	—	1	2.08
2.75	—	—	1	2.08
3.00	1	2.08	2	4.17
No answer	4	8.33	3	6.25
Total	48	99.98	48	100.01

TABLE 6
BOOKS AND AUDIOVISUAL MATERIALS ADDED TO COLLECTIONS

Number	Books		Audiovisual Materials	
	Number of Libraries	Percent	Number of Libraries	Percent
0	—	—	1	2.08
1-50	2	4.17	27	56.25
51-100	12	25.00	3	6.25
101-150	5	10.42	—	—
151-200	3	6.25	—	—
201-250	4	8.33	—	—
251-300	2	4.17	—	—
301-350	—	—	—	—
351-400	3	6.25	—	—
401-450	1	2.08	—	—
451-500	1	2.08	—	—
500+	1	2.08	1	2.08
Not recorded	9	18.75	11	22.92
Not answered	5	10.42	5	10.42
Total	48	100.00	48	100.00

title or author. Government publications are cataloged and classified in the same way as other books, pamphlets, and periodicals. Career pamphlets are housed in a separate career-counseling center. Other pamphlets are arranged in alphabetical order using Library of Congress subject headings. AACR1 is used as the cataloging code for both books and audiovisual materials, and change to AACR2 is anticipated. Libraries have a card catalog arranged either in dictionary or in divided order. Audiovisual materials are classified and cataloged in a variety of ways; call number designations for these materials are varied. Most audiovisual materials are shelved in

closed-access areas. Libraries do not yet participate in computerized cataloging networks and either are not planning to participate or are undecided. Cataloging staffs consist of one full-time professional and one paraprofessional person or less with no student help. On a monthly basis, 500 books or fewer are added to the collection and 100 audiovisual items or fewer are added. More original cataloging is done for audiovisual materials than for books.

The data indicate that two-year college libraries are traditionally organized libraries as they enter the 1980s. Most audiovisual materials are classified and cataloged, but it seems evident that they have not been fully accepted or integrated into the book collection. With the advent of the computer age, it will be interesting to replicate this study in the year 2000 to see what impact the computer will have on these libraries.

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TABLE 7

USE OF ORIGINAL AND COMMERCIAL CATALOGING

Percent	Books		Audiovisual Materials	
	Orig.	Cml.	Orig.	Cml.
0	1	3	—	18
1-10	15	—	—	4
11-20	5	1	2	1
21-30	4	—	—	1
31-40	—	1	1	1
41-50	2	2	3	3
51-60	1	—	1	—
61-70	—	1	—	1
71-80	1	6	1	2
81-90	—	9	3	—
91-100	3	9	20	—
Unusable or no response	6	6	7	7
Data not recorded	10	10	10	10
Total	48	48	48	48

2. Arthur Ray Rowland, "Cataloging and Classification in Junior College Libraries," *Library Resources & Technical Services* 7:254 (Summer 1963). Rowland reported that 96.5 percent of 315 junior college libraries were using DDC and only 3.5 percent were using LCC. Desmond Taylor, "Classification Trends in Junior College Libraries," *College & Research Libraries* 29:352 (Sept. 1968). Taylor reported 77.1 percent of 690 junior college libraries using DDC and 13.3 percent using LCC. He also reported that 8.4 percent were changing from DDC to LCC, and 0.6 percent were planning to change.
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Book Theft and Book Mutilation in a Large Urban University Library

A questionnaire study of why students in a large urban university steal and mutilate library books and periodicals identified psychological and sociological motivational factors in the students. Circumstantial reasons for such deviant behavior were not significant in this study. The individual student's perceptions of pressure for success in the academic world seemed to motivate mutilation and theft regardless of the quality of available library service. Peer approval for these behaviors was not apparently assumed.

THIS PAPER reports on a study of book theft and book mutilation using observed patterns of behavior. An attempt was made to identify the personal characteristics of students who mutilated and/or did not check out library books different from student-body members who followed normal library-use behavior. These results make a statement about those who break the rules in the university library, about the library itself, and about the structure of the university.

REVIEW OF THE LITERATURE

A literature search revealed that library abuse had been approached from different angles. Tyler isolated the history of large-scale book theft and focused on the magnitude of the problem.¹ Kaske, in conducting a library inventory search, found that 13.07 percent of the library's missing collection could have been stolen.²

Souter, who interviewed librarians in an attempt to better understand "delinquent readers," believed those who mutilated and/or stole library materials to be basically selfish. Students did not consider their theft to be wrong and they behaved in similar ways outside of the university.³ These studies indi-

cate some of the variables involved in the problem of book theft and mutilation.

A survey by Hendrick and Murfin at a state university explored some of the social dimensions of those engaging in book mutilation.⁴ Looking for motivation for the mutilation of periodicals, they found no outstanding differences between those who mutilate periodicals and those who do not. The reasons given were circumstantial: the library was closing, the copy machine broken, no money was available to make a copy, the copy machine would not reproduce photographs or charts.⁵

This study is based on information in the literature that illuminated and described the problem. To a limited degree this study replicates Hendrick and Murfin's study on the mutilation of periodicals but, in addition to examining the behavior of those students admitting to book mutilation, also includes students who removed unchecked books or stole them. In addition, this study occurred in a different sociocultural time frame. The Hendrick and Murfin study was done in 1973 and this one in 1978. This is an important difference for library book abuse because the two times compare student activity in the library before and after the copy machine "revolution."

METHODOLOGY

The Procedure

Using for the most part the issues raised by

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Hendrick and Murfin (but considering the others mentioned above), a questionnaire was formulated. During the spring semester of 1978, faculty members known by the author administered 100 questionnaires to their undergraduate classes. In addition, questionnaires were distributed to students in front of the student union building (of which 101 were completed and returned). With the exception of one student, all in the sample were under-

graduates. This analysis is based on the total 201 respondents.

Division of the Student Body

The questionnaire used in this study (appendix A) was designed to divide student library users into two groups. The first consisted of those who admitted that they had at least once removed library books without checking them out or had ripped a page out of a library book or periodical.

The second group consisted of students who said that they had always checked books out of the library according to the rules and who indicated they had never mutilated books. In this paper, this second group's behavior is referred to as "following library rules."

Those in the rule-violating group consisted of 8 percent (17 students) of the total sample (who sneaked books out of the library) and 9 percent (18 students) of the total sample (who had ripped pages from books or periodicals). This group comprises a total of 33 students, since 2 of the students admitted to both sneaking out books and ripping out pages. Because of the random nature of the distribution of the questionnaire (and promise of anonymity on the questionnaire itself), the author believes these numbers to be roughly indicative of the size of the problem.

The sample, for the purpose of this analysis, is divided into (1) students who check out books and do not rip pages, and (2) those who reported to have at least once sneaked a book out of the library or torn out a page (or to have done both).

The rule-following group includes 168 students, or 84 percent of the total sample, and the rule-breaking group includes 33 students, or 16 percent of the total sample.

FINDINGS

Students' Motivation for Violating Library Rules

Table 1 indicates the motivations of the university students who break the rules of the library. First, such a student is one who is likely to say he or she is doing very well academically ($p < .05$). This student may be successful in academic work because of his/her aggressiveness in fighting for grades. The motivation to succeed academically, which may lead to the rule-breaking behavior, in

TABLE 1
STUDENTS' POSSIBLE MOTIVATIONS
FOR VIOLATING LIBRARY RULES

Students' Possible Motivations for Violating Library Rules	Violating Library Rules	
	Checks Out Books and Does Not Rip Pages	Sneaks Out Books and/or Rips Pages
Academic Performance		
Very well	22% (37)	42% (14)
All right; Not too badly	75% (126)	58% (19)
Poorly	3% (5)	0% (0)
chi-square = 6.7011, df = 2, $p < .05$		
Receives Financial Aid		
Yes	60% (95)	69% (22)
No	40% (63)	31% (10)
chi-square = .9285, df = 1, $p < .05$		
Holding Down a Job		
True	55% (91)	44% (14)
False	45% (75)	56% (18)
chi-square = 1.3404, df = 1, $p < .05$		
Feeling Served by the Library		
Served well	37% (61)	33% (11)
Service could be improved	63% (102)	67% (22)
chi-square = .2663, df = 1, $p < .05$		
Cost of Copy Machine		
Never too expensive	67% (111)	70% (21)
Too expensive at least once	33% (55)	30% (9)
chi-square = .1935, df = 1, $p < .05$		
Inconvenienced by Broken Copy Machine		
Never inconvenienced	21% (30)	19% (6)
Inconvenienced at least once	79% (115)	81% (25)
chi-square = .1524, df = 1, $p < .05$		

TABLE 2
DECLARING INCONVENIENCE BY THEFT,
BY ACADEMIC PERFORMANCE, AND BY VIOLATING LIBRARY RULES

Inconvenienced by Theft	Academic Performance			
	Very Well Checks Out Books and Does Not Rip Pages	Sneaks Out Books and/or Rips Pages	All Right Checks Out Books and Does Not Rip Pages	Poorly Sneaks Out Books and/or Rips Pages
Never				
inconvenienced	27% (10)	36% (5)	17% (22)	16% (3)
Inconvenienced at least once	73% (27)	64% (9)	83% (104)	84% (16)
		chi-square = .408 df = 1, $p < .05$ gamma = -.2		
			chi-square = .1912 df = 1, $p < .05$ gamma = .06	

itself provides an advantage over other students who have more limited access to library materials since they follow the library rules.

Alternately, students conceivably could steal and mutilate books out of a need for money. Financial need was measured by receipt of financial aid and, though the differences between those receiving aid and those who do not are not statistically significant, there is some evidence that money is a motivating factor in student behavior. There is also some difference between the samples as to students holding jobs. Part-time employment might mean reinforcement of norms that transfers to these students' library behavior.

Students do not, as seen here, steal and mutilate books because they do feel not well served by the library. There appears to be no relationship between attitude toward the library's services and rule-breaking behavior, although it can be seen that approximately one-third of the student body feels well served while two-thirds do not. In addition, Students in this sample did not steal and mutilate library books to avoid the expense of making a copy or because the copy machines broke down frequently.

Table 2 highlights the relationship between breaking library rules and academic performance. Here the gamma for doing well academically and being inconvenienced because material wanted has been stolen is slightly negative; doing less well academically and being inconvenienced are unrelated. Students who break library rules are shrewder. The "cleverness" in these students explains both their book-theft behavior and their ability to find what they need in the

library more easily when compared with less able students.

Students' Attitude toward Violating Library Rules

Most students, regardless of library rules, take the attitude that there is no danger of getting caught mutilating books. However, having committed such an act does make the student feel it is easier to do successfully ($p < .05$) (table 3). Among students who remove books, the feeling is that they will not be caught with the book when checked by guards at the exit ($p < .05$).

Although most students in the sample indicated that they did not steal things other than library materials, others who stole from the library were somewhat more likely to steal other things. Most students, regardless of their following library rules or not, did not feel that the majority of their friends stole books, but a small percentage of students in the sample who violated library rules believed most of their friends did also. The data obtained from asking if students felt that a large proportion of the entire student body stole books indicated that students are evenly divided on whether more or less of the student body steal books.

The Relationship of Stealing and Mutilating Books

One would expect that before removing a book from the library a student might also have considered doing so in the past, and this is significant ($p < .05$) when isolating those that have stolen books. However, among students who mutilate books there is also a significant difference ($p < .05$) in this group for

considering sneaking out a book, as seen in table 4.

Students Who Sneak Out and Mutilate Books Rate Themselves

Table 5 indicates the reasons for their behavior given by students who violated library rules. The most popular answer indicates that

TABLE 3

STUDENTS' ATTITUDE TOWARD VIOLATING RULES

Students' Attitude toward Violating Rules	Violating Library Rules	
	Checks Out Books and Does Not Rip Pages	Sneaks Out Books and/or Rips Pages
<i>Ease in Ripping Out Pages</i>		
Difficult through fairly easy	39% (65)	24% (8)
Very easy	61% (103)	76% (25)
chi-square = 4.2369, df = 1, p < .05		
<i>Odds Getting Caught with an Unchecked-Out Book (Only for Students Sneaking Out Books)</i>		
1 in 10	71% (126)	44% (7)
1 in 100	29% (52)	56% (9)
chi-square = 4.2393, df = 1, p < .05		
<i>Stealing Other Than Library Books</i>		
Never	91% (134)	83% (24)
Yes	9% (13)	17% (5)
chi-square = 1.4896, df = 1, p < .05		
<i>Do Friends Steal Books?</i>		
No	100% (135)	91% (29)
Yes	0% (0)	9% (3)
chi-square = 10.3657, df = 1, p < .05		
<i>Believes % Student Body Steals Books</i>		
10% or less	53% (82)	52% (15)
25% or more	47% (72)	48% (15)
chi-square = .0644, df = 1, p < .05		

the theft is psychologically, not practically, motivated. The sneaking out of books and ripping of pages is a bad habit done in an impersonal setting by the student thinking solely of himself.

Summary and Discussion

The bivariate approach used in this study was intended to point up the ways those students who sneaked books out of the library or ripped out pages differed from the students who were "like themselves" but followed the library expectations for behavior.

There was significant evidence that those in the rule-breaking group are good students who steal books independent of peer support. The student who will steal or mutilate library material thinks about it before attempting it, believes it is not difficult, and does not expect to be caught.

Findings of previous studies were confirmed regarding the size of the problem and the extent of library abuse. Kaskie had found 13.07 percent of a collection missing because of theft; the data in this study indicated 8 percent of the student body actively steal books.

This study, in the context of the study by Hendrick and Murfin, suggests that students who mutilate books also consider stealing them from the library.

Students who had mutilated books in the Hendrick and Murfin study indicated that the copy machines were too expensive. Interviews with the "rip-offs" revealed that if the library had not been closing or the students had had the right change for the copy machine, etc., the mutilation would not have taken place (i.e., the act was circumstantial). In this sample the cost of making a copy or the workability of the machine was not related to the ripping out of pages or the sneaking out of books.

If this study had been conducted at the

TABLE 4
SNEAKING OUT A BOOK OR RIPPING OUT PAGES,
BY CONSIDERING SNEAKING OUT A BOOK

Considering Sneaking Out a Book	Sneaking Out Books		Ripping Out Pages	
	Checks Out Books	Sneaks Out Books	Does Not Rip Pages	Rips Out Pages
Never considered	80% (122)	0% (0)	80% (122)	39% (7)
Considered at least once	20% (30)	100% (17)	20% (30)	61% (11)

chi-square = 47.86
df = 1, p < .05

chi-square = 14.159
df = 1, p < .05

TABLE 5
STUDENTS GIVE REASONS FOR STEALING
AND MUTILATING LIBRARY BOOKS

Percent	Reason
45%	Do not consider the needs of others
36%	Need the photographs or charts in books and cannot photocopy them
30%	Do not think about the act but steal and mutilate casually and thoughtlessly
27%	Are not aware of the cost of theft and mutilation to the library
24%	Cannot afford the copy machine or price of a book but want to own a copy
18%	Steal and mutilate books as an expression of hostility toward the library and the university

same time as the Hendrick and Murfin study, it might have yielded more similar results on some variables, but there was the five-year difference between the two, from 1973 to 1978. By 1978, the copy machine had become an integral part of "using the library." An article about the photocopy industry stated that 1973 was the largest profit year in history, up to that time, for the photocopy industry, in a trend toward more photocopying that began accelerating in the 1960s⁶ and has continued at more rapid rates since 1973. When students interviewed for the Hendrick and Murfin study indicated that better access to copy machines would stop mutilation, regular use of copy machines in the library was still a novelty. But consistency in the size of the problem suggests that more copy machines do not reduce mutilation.

There are other differences in the findings between this study and that done by Hendrick and Murfin. It was found here that better students mutilate books and sneak them out of the library, while the other study found that, to some degree, students with a higher grade point average mutilated books but the relationship was not statistically significant. In Hendrick and Murfin, students who had mutilated periodicals felt they had been treated unfairly by the library, while in this study attitudes toward the library and feeling well served were not related to book theft or mutilation.

This study showed that students who break library rules do not feel they will get caught doing so and consider book theft beforehand.

Hendrick and Murfin also found that students do consider mutilating before attempting it and do not feel they will get caught.

CONCLUSION

Because this study yielded results that the attitude toward the library and availability of copy machines were not related to book theft or mutilation, I believe the norm-violating behavior to be caused not primarily by the more external library service but by a psychological and sociological state within the students who commit such acts. The fact that a student who rips a page out of a book is significantly more likely to also consider sneaking out a book makes me believe that there is a definite antisocial streak that is distinctive.

I believe that students who break the library rules in this way do so because of their coping response to do well under academic pressure. It was the better students in the total sample who admitted to committing acts of library abuse. Because this study was done in an urban university library, it could be said that the "toughness" of city life causes the theft. However, I believe a case could be made for "danger" on a rural college campus also, specifically, the pressure for good grades.

Since it is more likely to be the better students who are involved, I agree that they are behaving "selfishly" as reported by Souter. It is relevant that these students, when choosing a motivation for this behavior, choose "Do not consider the needs of others" most often. When a "good" student steals material he needs, he/she does so because his/her future professional career is more important than the library rules themselves. Good grades may serve to reinforce for these students that it is more important what happens in their individual careers than sensitivity to the needs of their fellow students. It could be that the alienation intrinsic to university life as distinct from the intimacy of a college is a contributing factor.

OTHER HYPOTHESES

The impersonal structure of the university may also contribute to antisocial behavior in the library. As a long-range goal, university administrators would do well in attempting to make students feel that they are a part of a

personal community. The student working in a large library is not relieved of the impersonal, achievement-oriented structure of the classroom. Better students appear to become alienated from their own better values when under academic pressure, abuse their library privileges, and do not believe this to be too serious since they don't believe they'll get caught. In reality, they probably are not caught, and the pattern of book theft remains one thought up and practiced by the student acting alone.

Before attempting to solve the problems of the students' feelings of isolation and the pressure of the academic setting, it is more practical to change immediately the cycle of book theft and abuse. The fact that the library does not apprehend the student sets up the cycle of repeated theft and the student becomes unafraid of the consequences of his or her actions. The validity of this is seen when

most students (having broken the library rules or not) feel they will not get caught ripping out pages.

If students believed they would be caught, and library-rule breaking were taken seriously, the problem would decrease significantly, and a different psychology would evolve among students in their use of library privileges. The larger academic community appears to tolerate book theft and mutilation because it feels that students suffer as they try to maintain their grade point average. An objective understanding of the motivations of the student who mutilates and steals books should make those in the library community less sentimental on this issue. If the problem of library-book abuse is to be taken more seriously and even eliminated, the question of why student offenders are not caught has to be addressed seriously.

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3. G. H. Souter, "Delinquent Readers: A Study of the Problem in University Libraries," *Journal of Librarianship* 8:96-110 (April 1976).
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6. "Photo Growth Spurred by Copiers," *Exchange* 35:12-13 (April 1974).

APPENDIX A: QUESTIONNAIRE

The information collected in the following survey is going to be used in a term paper about the library for a graduate course. All information will be kept confidential and anonymity is ensured. If you cannot answer any question, skip over it to the other questions. Thank you for your time and cooperation.

Circle the answer you choose.

1. My major area of study is _____.
2. I feel academically I am doing:
 - A. Very well
 - B. All right
 - C. Not too badly
 - D. Poorly
3. I am a full-time student:
 - TRUE
 - FALSE
4. I also hold a full-time or part-time job:
 - TRUE
 - FALSE
5. I:
 - A. Receive financial aid
 - B. Do not receive financial aid
6. I am:
 - A. A graduate student
 - B. An undergraduate student

7. In general:
 - A. I feel well served by the library.
 - B. I feel well served by the library but there are some things that could be improved.
 - C. I feel the library isn't operated very well.
8. How many times have you removed a book from the library without checking it out?
 - A. Zero B. 1-4 C. 4 or more
9. If you have removed a book in the above manner, how many times did you return it to the library after that?
 - A. Zero B. 1 or 2 times C. 3 or more times
10. Have you ever considered removing a book from the library without checking it out?
 - A. Never B. Once or twice C. Three times or more
11. What do you think the odds are of being caught with an unchecked-out book at the door?
 - A. One out of a 100
 - B. One out of 10
 - C. One out of 2
12. What proportion of the student body do you think has stolen books?
 - A. 2% B. 10% C. 25% D. 50% E. 75%
13. Knowing your close friends as you do, how many have stolen books?
 - A. the minority B. the majority C. 10% D. 50% E. 75%
14. Have you been inhibited from using the Xerox machine because it was too expensive?
 - A. Never B. One to four times C. A great deal of the time D. Most of the time
15. Have you been inconvenienced because the Xerox machines were not working?
 - A. Never B. One to four times C. A great deal of the time D. Most of the time
16. Have you ever torn a section out of a library book or magazine?
 - A. Never B. Once C. Two to four times D. More than four times
17. Do you think ripping out a section of a book or magazine would be easy or difficult to accomplish?
 - A. Very easy B. Fairly easy C. Not too hard D. Difficult
18. Have you every been inconvenienced because a book you want has been stolen or a section you wanted ripped out?
 - A. Never B. Once or twice C. Three or more times
19. If you have ever removed a book from the library without checking it out or torn out a section of a book or magazine, circle as many of the following choices as are valid for yourself. Books are stolen and mutilated because students:
 - A. Do not consider the needs of others
 - B. Cannot afford the Xerox machine or the price of a book but want to own a copy.
 - C. Are not aware of the cost of theft and mutilation to the library.
 - D. Need the photographs or charts in books and magazines and cannot photocopy them.
 - E. Do not think about the act or the library but steal and mutilate casually and thoughtlessly.
 - F. Steal and mutilate books as an expression of hostility toward the library and the university.
 - G. None of the above.
 - H. Other.
20. Do you steal things other than library books?
 - A. Never B. Yearly C. Monthly D. Weekly

Optional question:

If it were up to me to better control book theft and mutilation of library material, I would _____

Selected Reference Books of 1980-81

THIS ARTICLE continues the semiannual series originally edited by Constance M. Winchell. Although it appears under a by-line, the list is a project of the Reference Department of the Columbia University Libraries, and notes are signed with the initials of the individual staff members.¹

Since the purpose of the list is to present a selection of recent scholarly and general works of interest to reference workers in university libraries, it does not pretend to be either well balanced or comprehensive. A brief roundup of new editions of standard works, continuations, and supplements is presented at the end of the article. Code numbers (such as AE213, DB231) have been used to refer to titles in the *Guide to Reference Books* and its supplement.²

BIBLIOGRAPHY

European Americana: A Chronological Guide to Works Printed in Europe Relating to the Americas, 1493-1776. New York, Readex Books, 1980- . v.1- . (In progress) LC 80-51141. ISBN 0-918414-03-2.

At head of title: The John Carter Brown Library.

Contents: v.1, 1493-1600, ed. by John Alden. 467p. \$50.

The chronological arrangement followed in this "guide" allows, for the first time in such a comprehensive bibliography, the sequential unfolding of events and their interpretations in the literature about America. Beginning with the announcements of Columbus' discovery and continuing through 1600, this first volume covers a period when no printing presses were operating in America, so nearly every work published then which touched on

the American experience is cited. Ultimately, the coverage will reach the revolutionary war era and the work will consist of several volumes—the editors do not predict how many—which are already "well in hand" and scheduled for publication in the "near future."

When completed, *European Americana* should be the most important bibliography of Americana to have been produced in decades. Nonetheless, it will not completely supersede Sabin (*Guide* AA451), though it does overlap that work in some of its coverage. Sabin's dictionary arrangement has the drawback of making it impossible to effectively locate works within their historical framework. Thus, social historians and those interested in the "sense and flow of history" will be especially pleased with the perspective this new work offers; with the assistance of the computer, each entry has been recorded under the year of its appearance. Thousands of works unrecorded in Sabin are among the entries in this first volume—indeed, only one-quarter of them are in Sabin. Works in fields such as medicine, natural history, and literature, not recognized as "Americana" by Sabin, account for many of the new entries.

The bibliographical information in each citation reflects the completeness and accuracy one expects from John Alden. Locations of copies in more than 350 libraries and private collections in the United States and Europe are indicated, but full collations are not here—though the many citations to other bibliographies usually indicate where they can be found. There is an excellent index of topics, titles, and authors, and two useful lists of printers and booksellers, one alphabetical, the other geographical.—P.C.

DICTIONARIES

Chicago. University. Oriental Institute. *The Hittite Dictionary of the Oriental Institute of the University of Chicago.* Ed. by Hans

1. Paul Cohen, Rita Keckeissen, Anita Lowry, Eileen McIlvaine, Mary Ann Miller; Lehman Library: Laura Binkowski, Diane Goon.
2. Eugene P. Sheehy, *Guide to Reference Books* (9th ed.; Chicago: American Library Assn., 1976); *Supplement* (Chicago: American Library Assn., 1980).

G. Güterbock and Harry A. Hoffner. Chicago, The Institute, 1980—. v.3, fasc.1—. (In progress) LC 79-53554. ISBN 0-918986-27-3.

Contents: v.3, fasc.1, L—-ma. \$9, pap.

"Designed for English speaking scholars and students" (*Pref.*), this dictionary of the earliest preserved Indo-European language is to be of intermediate length, giving "complete coverage of the representative occurrences of each Hittite word" without aiming to be exhaustive. It is based on lexical files that cover 90 percent of the published texts, and to a lesser extent on unpublished texts. Etymologies are not given as such, but an identifiable foreign source for borrowed words is indicated. Arrangement is much like that of the Institute's *Assyrian Dictionary* (*Guide* AD170), with entries divided into lexical, morphological, and semantic sections. Texts are indicated in the latter two sections; quotations and English translation and notes appear in the semantic paragraph. A provisional list of abbreviations is provided, and a complete list of Old and Middle Hittite corpora is planned.—R.K.

GOVERNMENT PUBLICATIONS

Rodgers, Frank. *A Guide to British Government Publications*. New York, Wilson, 1980. 750p. \$35. LC 80-322. ISBN 0-8242-0617-7.

Rodgers has expanded his 1971 *Serial Publications in the British Parliamentary Papers, 1900-1968* (*Guide* AG80) into one of the most useful guides to the whole range of current British government publishing and publications. His presentation is organized by issuing body, grouping together each central department and its subagencies; this arrangement makes for clear order and, more importantly, is the arrangement that most libraries follow. A broad subject approach is still possible with this type of presentation if one looks under the names of the appropriate agencies. And there is a good index to the whole volume.

For the Parliament, each executive department, and all the subagencies of each Rodgers offers a discussion of the history and changes in function and describes the major publications, concentrating on "all annual administrative reports and important statisti-

cal publications and serials."—*Introd.* For monographic titles the treatment is more selective, "the emphasis being on recent titles, particularly policy papers and those other documents that typify the predominant interests of the department." The discussion of each department ends with a short checklist of bibliographies of departmental publications and studies of the department or its agencies.

A tremendous amount of information is presented here, the discussion is clear, the selection of entries is judicious, and each entry is carefully annotated. Students and librarians will find the work a great help to an understanding of the organization and functions of the government as well as a good guide to the sources available.—E.M.

BIOGRAPHY

Biographical Books, 1950-1980: Vocation Index; Name/Subject Index; Author Index; Title Index; Biographical Books in Print Index. New York, Bowker, [1980]. 1557p. \$75. ISBN 0-8352-1315-3.

Just as we live in an age of computers, so do we live in an age of "spin-offs." This expensive compilation is derived from the database used to produce the *American Book Publishing Record* (*Guide* AA463) and its various cumulations. The so-called "Name/Subject Index" (the major portion of the book) reproduces the full cataloging information as found in ABPR for all works in that database which are of a biographical nature—biographies, autobiographies, collective biographies, letters, diaries, journals, biographical dictionaries, and directories—published or distributed in the United States since 1950. Paperback and reprint editions are included, as is juvenile literature. Approach in the name/subject section is mainly by name of biographee, but form headings such as "Capitalists and financiers—U.S.," "Canada—Biography—Dictionaries," and "Poets, American" are interfiled with the individual and family names. The vocation index provides a list of names in a given field; the author and title indexes refer to page numbers within the name/subject section. The "in print" index (which is a title listing giving publisher, price, and ISBN, but not the author's name) seems an unnecessary feature since the letters "BIP"

follow the citations for in-print material in the name/subject section.

The preface states that the work "was produced from records stored on magnetic tape, edited by computer programs, and set in type by computer-controlled photocomposition," leaving the impression that perhaps the machines were left to their own devices. Clearly some—or more—human editorial effort was in order. The preface boasts of 42,152 entries that were selected for inclusion, but there is a shocking number of duplicate entries for the same edition of a given work (e.g., three consecutive entries for a single edition of the letters of Sidney Lanier—who is entered both with and without birth/death dates, as is Frank Harris; Robert Frost gets in as "Frost, Robert" and as "Robert, Frost"). We are told that the database for an *ABPR Cumulative 1876-1949* supplies "the potential to publish information on biographies retrospectively to 1876"; one can only hope that such an undertaking will receive the kind of careful editing we have come to expect in a Bowker publication.—E.S.

Notable American Women: The Modern Period. A Biographical Dictionary. Ed. by Barbara Sicherman [and others]. Cambridge, Belknap, 1980. 773p. \$35. LC 80-18402. ISBN 0-674-62732-6.

Biographical sketches of 442 women who died between January 1, 1951, and December 31, 1975, constitute this supplement to the three-volume compilation *Notable American Women* (1971, *Guide* AJ46). Inasmuch as only five of the subjects of the basic set were born after 1900, this volume brings "the story of women's achievements further into the twentieth century" (*Pref.*) through a judicious and representative selection of biographees. Four basic criteria for inclusion are noted: "the individual's influence on her time and field; the importance and significance of her achievement; the pioneering or innovative quality of her work; and the relevance of her career for the history of women." A special effort was made to include outstanding minority figures, and foreign-born women are included if they "had done important work in the United States and had significant influence here." The familiar pattern of signed contributions with appended bibliographies is observed, and there is a classified list of biographies.—E.S.

PHILOSOPHY

Handbook of World Philosophy: Contemporary Developments since 1945. Ed. by John R. Burr. Westport, Conn., Greenwood [1980]. 641p. \$45. LC 80-539. ISBN 0-313-22381-5.

The purpose of this survey of modern philosophy is to delineate "particular philosophic tendencies and cross-currents, . . . individual philosophers and the distinctive styles and content of their philosophizing."—*Introd.* Essays are intended "to provide an internationally representative sample since 1945 of the characters, directions, wealth, and varieties" of philosophic activities, "interpreted and evaluated by philosophers particularly knowledgeable about the region or country being discussed."

Arrangement is by region (Eastern Europe, Asia, the Americas, etc.), then alphabetic by country. Each chapter, written by an expert, identifies and describes the country's philosophers and their philosophies, concluding with a bibliography of books and articles. There are subject and name indexes, an international directory of philosophical associations, a list of congresses and meetings, and notes on contributors. This is a useful work for the college and university philosophy collection.—R.K.

The Philosopher's Index: A Retrospective Index to Non-U.S. English Language Publications from 1940. Ed. by Richard H. Lineback. Bowling Green, Ohio, Philosophy Documentation Center, Bowling Green State Univ., 1980. 3v. \$180. ISBN 0-912632-12-7.

Contents: v.1-2, Subject index; v.3, Author index.

This set is a companion to the publisher's *Philosopher's Index: A Retrospective Index to U.S. Publications from 1940* (publ. 1978; *Suppl.* BA3), and similar to it in purpose, format, and arrangement. Included are about 5,000 English-language books issued from 1940 to 1978, and about 12,000 English-language journal articles from some seventy periodicals published from 1940 to 1966; all appeared outside the United States. Periodical coverage thus antedates for twenty-seven years the regular issues of the *Philosopher's Index* (*Guide* BA24), which begins in 1967. Books included are original and scholarly works in philosophy; translations,

new editions, reference tools, textbooks, dissertations, etc., are excluded.

The subject index employs a list of descriptors, with books, parts of books, and journal articles entered by title in separate alphabets and giving author's full name. The author index provides full bibliographical details and, for most entries, brief abstract. With the publication of this work an important segment of philosophical scholarship can boast of excellent coverage for the past forty years.—R.K.

LITERATURE

Columbia Dictionary of Modern European Literature. 2d ed., fully rev. and enl. Jean-Albert Bédé and William B. Edgerton, gen. eds. New York, Columbia Univ. Pr., 1980. 895p. \$50. LC 80-17082. ISBN 0-231-03717-1.

Some 500 scholars from the United States, Canada, and several European countries contributed to this thorough and very welcome revision of the 1947 edition of the *Dictionary* (Guide BD34). Not unexpectedly, it follows the pattern of the first edition, taking as its starting point "the period toward the end of the 19th century when Europe was swept by a wave of new literary movements" (Pref.), but writers were selected for inclusion "on the basis of their relevance to 20th-century literature." Entries for individual writers now total 1,853, and surveys of the various national literatures are again a feature of the work. Articles—many of them newly prepared—are signed with the contributor's initials; revisions by different hands of articles from the first edition are so indicated. The brief bibliographies appended to the articles were compiled "especially with a view to meeting the needs of readers who may not be specialists in the literature to which the writer belongs." A work of this kind is a major editorial undertaking, but one hopes that another thirty-odd years need not elapse before the next revision.—E.S.

Greenfield, Stanley B., and Robinson, Fred C. *A Bibliography of Publications on Old English Literature to the End of 1972.* Toronto, Univ. of Toronto Pr., [1980]. 437p. \$75. LC 78-4989. ISBN 0-8020-2292-8.

Any urge to complain about the early cutoff date of this bibliography is largely dispelled by a reading of the preface with its history of

the project and the deterrents to its completion. Building on a large and unstructured card file of publications to 1939 amassed by E. E. Ericson, Kemp Malone, and Stefán Einarsson, the compilers had not only to transcribe, verify, and classify citations on the existing cards, but to extend coverage through 1972. The resulting bibliography lists some 6,550 items (not counting the many citations to critical reviews). It intends to be exhaustive in its coverage of published writings on Old English literature: "studies of Anglo-Saxon social, political, and economic history, art history, archaeology, and linguistic questions" are omitted "except where such studies deal specifically with a literary aspect of a literary work in Old English."—Pref. The detailed table of contents, plus the author/reviewer and subject indexes, makes for easy use of this scholarly compilation.—E.S.

Index of English Literary Manuscripts.

Editorial board: P. J. Croft, Theodore Hofmann, and John Horden. London, Mansell; New York, Bowker, 1980—v.1— (In progress) LC 79-88658. ISBN 0-8352-1217-3.

Contents: v.1 (in 2 pts.), 1450–1625, comp. by Peter Beal. \$300.

The ambitious aim of this *Index* is "to produce a catalogue of the surviving manuscripts of those works which are accepted as constituting English literature."—*Introd.* No such comprehensive census has ever been attempted before, and this first volume reveals the success of the pioneer undertaking. It took seven years to complete, and it reflects the holdings of hundreds of libraries and private collections throughout the world; included are bibliographies of some seventy-five writers who flourished between 1450 and 1625. Manuscripts from this early period are especially important as they were still used for the dissemination of texts even after the advent of printing. For each author a lengthy bibliographical essay precedes the entries for individual holographs, which include proof sheets, diaries and notebooks, marginal notes in printed works, and scribal copies. Bibliographical references and descriptions are provided as well as information on provenance and location. In addition to listing known manuscripts, the compilers have discovered numerous previously unrecorded ones in the course of their research.

The series will eventually fill five volumes and will cover English literature up to the year 1900. When completed, this important work with its numerous facsimiles will generously fill a gap long felt by scholars. It could also clarify some of our notions about literature: the "aggregation of valuable facts," the editors point out, "may lead to the clearer definition of some important themes in literary, historical, and sociological research."—P.C.

PERFORMING ARTS

Armour, Robert A. *Film: A Reference Guide*. Westport, Conn., Greenwood, 1980. 215p. \$29.95. LC 79-6566. ISBN 0-313-22241-X.

Of the general film book bibliographies that have been published, this is the first one composed of bibliographic essays, and therein lie its particular strengths. Since the essays are selective, descriptive, and evaluative, they direct the user to a number of the better, more substantial monographic sources on film (though, as with any selective listing, one could question the inclusion or exclusion of individual titles). The bibliography is limited to books written in English, including translations, and relevant to the study of American popular film. Each chapter covers a broad subject area (e.g., film production, or film and related arts), which is further divided by appropriate topics; these topics correspond well to many of the most important aspects of American film history and popular approaches to film study. The bibliographic essays themselves provide an intelligent, if general, introduction to the serious consideration of film and writing about film. There is a subject index and an index of authors, editors, and interviewees. All of these things make this guide a good and easy-to-use source for students writing research papers or for general readers interested in a variety of film topics. In addition, there is a chapter on "Reference Works and Periodicals" (the periodicals list is particularly good) and an appendix on "Research Collections," features that would be useful in libraries not having more specialized guides to film research.—A.L.

Bronner, Edwin. *The Encyclopedia of the American Theatre, 1900-1975*. San Diego and New York, Barnes; London, Taviv

Press, [1980]. 659p. il. \$30. LC 75-2439. ISBN 0-498-01219-0.

"Encyclopedia" seems not quite the appropriate term for this very informative work: apart from an omnibus entry for the Federal Theater Project, it is basically a dictionary arrangement of entries for individual plays "written (or adapted) by American or Anglo-American authors" (*Introd.*) and produced on Broadway or off-Broadway during the 1900-75 period. Entries include date of opening of the play, theater, number of performances in the original run, a brief synopsis of the play (usually including references to the stars, critical judgment of the compiler, and, often, brief quotations from contemporary reviews), principal players, author, producer, director, and notes on revivals. Musicals are not included, although references to musical versions of the plays are mentioned in the notes; screen versions are also noted, but no cross-references or index entry is provided when the title of the musical or screen version differs from the original. Six appendixes help to justify the "encyclopedia" designation: (1) a calendar of notable premieres (including musicals and foreign plays); (2,3) Broadway debuts of actors and playwrights; (4) the 100 longest-running Broadway productions, 1900-75; (5) statistical record of Broadway productions by season; (6) awards. The index is of personal names only, but includes all names mentioned in the entries and in the appendixes.—E.S.

Rowan, Bonnie G. *Scholars' Guide to Washington, D.C. Film and Video Collections*. Washington, Smithsonian Institution Pr., 1980. 282p. (*Scholars' Guide to Washington, D.C.*, 6) \$25. LC 80-607014. ISBN 0-87474-818-6.

Published for the Woodrow Wilson International Center for Scholars.

The social scientist studying "mass media," the film scholar analyzing "cinema," the historian examining "visual documentation"—these scholars and students are often frustrated in their research by the difficulty of finding locations for films and video materials. There have been few directories or union catalogs for film and video archives, none of them covering the rich resources, both public and private, of the Washington, D.C., area. So this guide fills a definite need and fills it

very well by providing detailed information on the "collections, referral services, and academic programs" that make film and video available for scholarly research or provide information about such collections. The resources range from major repositories like the National Archives and Records Service (whose collections are described in forty-two pages, with index) and the Library of Congress (ten pages) to smaller but important collections in colleges and universities, public libraries, embassies, and other private organizations. Each entry includes a description of collections (giving examples rather than a complete listing of titles held), information about catalogs, instructions concerning access and eligibility, and a brief description of related collections of interest.

The ten appendixes are practically a book in themselves: "Television Stations, Services, Broadcasts"; "Public School System Media Collections"; "Other Film and Video Collections in the U.S."; "Theaters/Film Series"; "Media Organizations and Publications"; "Films in a Washington Setting"; "Note on Government Paper Records/Bibliographic Guide for Films and Video Studies"; "Technical Services/Commercial Distributors"; "Transportation/Housing/Services"; "Federal Government Holidays." Finally, there are five separate indexes, making an already valuable book even more valuable and easy to use.—A.L.

MUSIC

The New Grove Dictionary of Music and Musicians. Ed. by Stanley Sadie. [London, Macmillan, 1980] 20v. il. \$1,900. LC 79-26207. ISBN 0-333-23111-2.

It is somewhat presumptuous to deal with a work of this magnitude in a note restricted to a few hundred words. At best one can hail its long-awaited appearance and mention a few salient features. Although firmly based on *A Dictionary of Music and Musicians* by Sir George Grove (1st ed. 1878; 5th ed. and suppl. 1954-75; *Guide* BH78), this is virtually a new work retaining only about 3 percent of the material from earlier editions. It no longer emphasizes the nineteenth century, but the dictionary does reflect "the tastes and preferences of the English-speaking countries" (*Pref.*) while it "seeks to

discuss everything that can be reckoned to bear on music in history and on present-day musical life."

More than half the entries are for composers, but performers, scholars, theorists, patrons and publishers of music, and people in other arts whose work was important to music find their place here. Terminology and musical genres and forms are fully treated; institutions, orchestras, and societies are given their due; and there are entries for cities and towns with significant musical traditions. Most articles are signed (the approximately 2,500 contributors are listed in volume 20); longer articles generally follow a uniform structure; and bibliographies include both studies used as source materials and recommended readings. Lists of compositions are an important feature and "are designed not only to show a composer's output . . . , but also to serve as a starting-point for its study."—*Introd.* British terminological usage may present an occasional difficulty for the American user; on the other hand, volume 20 includes a helpful "Index of terms used in articles on non-Western music, folk music and kindred topics."—E.S.

SOCIOLOGY

Ballou, Patricia A. *Women: A Bibliography of Bibliographies.* Boston, G. K. Hall, 1980. 155p. \$16. LC 80-21042. ISBN 0-9161-8292-2.

The outgrowth of a survey article originally published in the periodical *Signs* (1977), this carefully selected list of more than 500 bibliographies will be welcomed by students and librarians as an excellent starting point for women's studies research. Included are works published from 1970 through 1979 that are "concerned primarily with women or with a topic traditionally associated with women."—*Introd.* Listed are both "annotated and unannotated lists of citations, bibliographic essays, literature reviews, library catalogs and guides to archives or manuscript repositories" published as books, parts of books, pamphlets, journal articles, or in microform.

A classified arrangement is used, with first a general section, then geographical subjects (i.e., works concerning women in an individual country or state), then topical subjects such as history, literature, sociology, etc.,

with subdivisions as needed. Helpful annotations, chiefly descriptive in character, note number of entries, arrangement, scope, and special features. The detailed table of contents serves for a subject search; there is a name index.—R.K.

Harvard Encyclopedia of American Ethnic Groups. Ed. by Stephan Thernstrom [and others]. Cambridge, Harvard Univ. Pr., 1980. 1,076p. \$60. LC 80-17756. ISBN 0-674-37512-2.

Whether one subscribes to the "melting pot" theory of ethnicity or one prefers the "salad bowl" explanation, the appearance of this encyclopedia is cause for general rejoicing. From Acadians to Zoroastrians, 106 different ethnic groups and their social, cultural, religious, linguistic, political, and economic past and present are represented in articles written by scholars. Each article is accompanied by a critical bibliography and usually a map of the homeland. Great care has been taken to include not only the foreign-born groups but also the native populations such as the Indians and the Eskimos, the distinctive regional clusters (e.g., Southerners and Yankees), as well as the other "made in America" groups such as the Amish and the Mormons.

Twenty-nine substantial thematic essays, also contributed by highly qualified specialists, address the broader issues of ethnicity: topics such as pluralism, assimilation, language maintenance, immigration, intermarriage; and, of particular note for librarians and investigators, there is an entry for resources and research centers. These articles are interfiled in the same alphabet as the ethnic entries, and one regrets the dearth of cross-references and the absence of a comprehensive index.

The major impact of this source book is twofold. One is delighted to discover entries on groups that heretofore have received very little treatment. Conversely, for those groups that benefit from extensive coverage in the literature of ethnicity, this encyclopedia provides an excellent introductory focus to the overwhelming output. It is a remarkable product of academic scholarship stimulated by the ethnic consciousness of the late sixties and early seventies and reflecting the rich diversity and pervasive influence of our collective heritage.—L.B.

International Handbook on Aging: Contemporary Developments and Research. Ed. by Erdman Palmore. Westport, Conn., Greenwood, [1980]. 529p. \$35. LC 78-74802. ISBN 0-313-20890-5.

Scholars in twenty-eight countries were requested by the International Association of Gerontology to submit evaluative essays on gerontological work in their respective countries for this state-of-the-art compilation. Each essay discusses the roles and status of the aged in a given country, the history of gerontology research (including research in progress), programs for the aged, and sources of further information. A bibliography of major works ends each essay; it often includes publications as recent as 1979. The articles are informative and readable, and are enhanced by tables summarizing the statistical data. Two appendixes give names and addresses of major organizations concerned with gerontology problems and research. The volume ends with a very workable index.

Most of the countries surveyed have a large number of people over age sixty-five (usually more than 7 percent of the population) and are highly urbanized. But there are exceptions, e.g., Venezuela with a low proportion of aged, and Yugoslavia not highly urbanized (yet those two countries have programs of research on aging). Two countries omitted because of time restrictions are Sweden and Australia; they are to be included in later editions.—E.M.

GEOGRAPHY

Rand McNally Encyclopedia of World Rivers. Chicago, Rand McNally, [1980]. 350p. il. \$24.95. LC 79-87898. ISBN 0-528-81048-1.

First published in the United Kingdom (London, Bison Books, 1980).

It seems a shame that this very handsome and informative volume was not fitted with the index and bibliographic apparatus that would have made it such a much more valuable reference tool. As it stands, we have a listing by continent of hundreds of rivers, large and small, with varying amounts of information about each, and a multitude of striking illustrations. "The major considerations in selecting the rivers were length, natural beauty and geographic importance. However, a myriad of smaller rivers were also

included because their banks provided sites for important towns, they were once significant trade routes or they were the scenes where historic events—battles, conferences and the like—occurred.”—*Introd.* Inset maps locate the major rivers, and those rivers are also treated in some depth. A special effort was made to reconcile conflicting statistics on the length of individual rivers.—E.S.

HISTORY

Mitterling, Philip I. *U.S. Cultural History*. Detroit, Gale, 1980. 581p. (American Government and History Information Guide Series, V.5) \$28. LC 79-24061. ISBN 0-8103-1369-3.

This is another in the line of subject bibliographies published by Gale that is especially well suited to the general reader, the college student, and their librarians. The author has chosen to emphasize intellectual history because social history, though once under the umbrella of cultural history, “is now attempting to achieve an identity with distinctive content.”—*Pref.* To describe the bibliography’s scope would be to say, perhaps, that it covers almost any aspect of American life that has been studied for its influence on American thought. Subjects range from Eli Whitney to Robert Frost, from flappers to farmers, and to the role of intellectuals in the designing of the industrial state.

The seven chapter headings reflect the obvious subjects of cultural history: “Architecture and the Arts,” “Biography,” “Historiography,” “Popular Culture,” etc. Each chapter is divided into three periods: Colonial to 1815, 1815 to 1915, and 1915 to the present. All entries are annotated, often critically, and they are indexed by author, title, and subject. The subject index, being derived from the annotations, offers thorough, analytical access to the material. The indexing, the annotations, and the chapter on reference materials especially recommend this book to the general reader. It is a well-conceived and well-wrought guide to sources that until now have been widely scattered.—M.A.M.

Smith, Myron J. *The Secret Wars: A Guide to Sources in English*. Santa Barbara, Calif., ABC-Clio, [1980]. 3v. (War/Peace Bibliography Series, no.12-14) LC 79-25784.

Contents: v.1, Intelligence, propaganda and psychological warfare, resistance movements, and secret operations, 1939-1945 (260p. \$34.50. ISBN 0-87436-271-7); v.2, Intelligence, propaganda and psychological warfare, covert operations, 1945-1980 (320p. \$42.50. ISBN 0-87436-303-9); v.3, International terrorism, 1968-1980 (237p. \$33.75. ISBN 0-87436-304-7).

This work represents the latest volumes in a series developed in cooperation with the Center for the Study of Armament and Disarmament at California State University, Los Angeles; each issue in the series “is intended to provide a comprehensive ‘working,’ rather than definitive, bibliography on a relatively narrow theme within the spectrum of war/peace studies.”—v.1, p.[vii].

The Secret Wars is thus more accurately described as a bibliography rather than a guide, since introductory sections are brief and do not evaluate the literature; brief annotations are provided only to clarify title content. The selection criteria emphasize published sources—books, periodical articles, government documents, doctoral dissertations, master’s theses, and scholarly papers produced through mid-1979; each of the three volumes contains more than 2,500 entries. Detailed tables of contents serve as a sort of classified subject index, with author and subject indexes provided for the first two volumes, and an author index for the third. Selected chronologies and lists of relevant journals are also included.

Smith has compiled at least eighteen other bibliographies in the field of military studies, and he gives generous notice to related, annotated bibliographies such as Blackstock and Schaf’s volume on intelligence and covert operations (*Suppl. CJ6*) and Mickolus’ compilation on terrorism (*Suppl. CJ17*). Clearly, however, this impressive addition to an impressive series should be in every research library with collections in history, political science, international relations, or international law.—D.G.

SCIENCE & TECHNOLOGY

A Guide to the Culture of Science, Technology, and Medicine. Paul T. Durbin, gen. ed. New York, Free Pr., 1980. 723p. \$45. LC 79-7582. ISBN 0-02-907820-2.

The editors of this compilation of essays and bibliographies are concerned that researchers and teachers are not addressing the "value" or ethical questions raised by science, technology, and biomedicine, a problem they see in the "two cultures" of C. P. Snow and in the fragmentation of the "humanistic and social science disciplines focusing on science and technology."—*Introd.* As a partial remedy, they commissioned specialists to produce surveys of various aspects of the history, philosophy, and sociology of science, technology, and medicine (e.g., "Medical Sociology and Science and Technology in Medicine" and "Science Policy Studies"). Each contributor was expected to focus "explicitly on the help the discipline might afford to those attempting to deal with major contemporary value questions" and whenever possible to refer to other fields.

A description of one of the nine sections will serve to make the purpose and content clearer. The essay "Philosophy of Science" offers a brief survey of the history of the subject from Plato to Ernst Mach, followed by a country-by-country account of twentieth-century studies outside the Anglo-American school. It then considers Anglo-American approaches to the philosophy of science and ends with a short exposition of the social responsibility of scientists. The appended bibliography offers a short list of the "classics" in the field, followed by twenty-seven pages of citations to relevant books, articles, and essays.

Bibliographies accompanying the other essays are equally extensive, with the "classics" section often offering much more guidance (e.g., citing dictionaries and encyclopedias, major journals, "staple reference works," museums and archives). Essays do not touch on certain topics, such as science and literature; antisience and antitechnology; science and technology; and law, science, and religion; or they treat them only incidentally, as in the case of environmental issues. However, this is a well-written and carefully researched compilation that is sure to become a major reference guide.—*E.M.*

Pritchard, Alan. *Alchemy: A Bibliography of English-Language Writings*. London, Routledge & Paul, 1980. 439p. \$75. LC 80-40147. ISBN 0-7100-0472-9.

To appreciate how widely the literature of alchemy is dispersed throughout the fields of the humanities and the sciences and to be fascinated by its many facets, one need only peruse this bibliography's entries and its "list of major sources searched." There are, for example, references to Chinese folklore, Taoism, the history of Hindu chemistry, Jungian psychology, Shakespeare's sonnets, and yoga—evidence of Pritchard's determination to chart for the first time both the main arteries and the many byways the art of alchemy has traveled. He attempts comprehensive coverage of all types of English-language writings about alchemy: the texts first, then the books, dissertations, articles, and pamphlets, arranged by country, or by subject if an item is general in nature. It is in ferreting out the secondary sources that Pritchard has pioneered: he has searched, page-by-page if need be, the general literature as well as the privately printed and esoteric publications from earliest times to 1975.

Because the chief concern was to be eclectic, no attempt was made to provide a complete record of every edition, nor full citations. Annotations are few and terse, but when a work not directly concerned with alchemy is cited there are notes to indicate its relevance, and there is a good subject index. The bibliography is a reflection of the compiler's ideas about alchemy (to which he gives expression in the introductory material) and the work as a whole will serve a wide range of users, from those wanting a definition of alchemy to those deeply involved in its study.—*M.A.M.*

NEW EDITIONS, SUPPLEMENTS, ETC.

Approximately 6,000 serials reprinted by some 260 publishers are listed in Band 2 of the *Internationale Bibliographie der Reprints* (München, K. G. Saur, 1980. 566p. \$89.50; Bd.1 publ. 1976, *Suppl.* AA94). Designated as "Periodicals, Newspapers, Annuals, Conference Reports, etc.," this volume includes many irregular publications and statistical reports in addition to the categories named. Keyword and classified indexes are included.

Nearly three times as many items—books, parts of books, and periodical articles—are cited in the second, revised and enlarged edi-

tion of Alan R. Eager's *Guide to Irish Bibliographical Material* (Westport, Conn., Greenwood, 1980. 502p. \$65) as appeared in the 1964 version (*Guide* AA53). The new work follows the same classified arrangement (based roughly on Dewey), with author and subject indexes.

The Second Barnhart Dictionary of New English (Bronxville, N.Y., Barnhart/Harper, 1980. 520p. \$19.95) is a continuation of the 1973 *Barnhart Dictionary of New English* (*Guide* AD68), the two volumes now including some 10,000 "words and meanings not entered or inadequately explained in standard dictionaries."—*Pref.* The new volume provides a date for the compilers' earliest evidence for use of a new word or meaning.

"No longer will all of the sketches in a given *Contemporary Authors* volume [*Guide* AJ33] be updated and published together as a revision volume. Instead, sketches from a number of volumes will be assessed, and only those sketches requiring *significant change* will be revised and published in a *Contemporary Authors New Revision Series* volume." Thus the preface to the first volume of the New Revision Series (Detroit, Gale, 1980. 736p. \$62) explains the policy for preparation of revised volumes. Updated sketches from previous revisions will also be included, and the latest *Contemporary Authors* cumulative index will continue to index the revised volumes.

Designated as the fifth edition, the new *Répertoire International des Médiévistes* (Paris, etc., K. G. Saur, 1979. 2v. \$129) issued by the Institut de Recherche et d'Histoire des Textes is a continuation of the Labande and Leplant work of the same title (1971; *Guide* AJ36). It offers biobibliographies of some 6,000 medievalists in forty-three countries and lists their publications that have appeared since 1969. Geographical and specialty indexes are not provided in this edition.

The Philosopher's Guide to Sources, Research Tools, Professional Life, and Related Fields by Richard T. DeGeorge (Lawrence, Regents Pr. of Kansas, 1980. 261p. \$20) represents a thorough reworking, updating, and expansion of the compiler's *Guide to Philosophical Bibliography and Research* (1971; *Guide* BA2). There are now three main sections: (1) philosophy; (2) general research tools; (3) related fields; each is appropriately

subdivided. The index includes authors, subjects, and most titles.

Studies of short fiction published 1976–78 are cited in *Supplement I to the Third Edition* (Hamden, Conn., Shoe String, 1980. 257p. \$27.50) of Warren S. Walker's *Twentieth-Century Short Story Explication* (1977; *Suppl.* BD31). Some 186 additional authors are treated, along with new citations to authors dealt with in the basic volume. Citations to earlier publications previously overlooked have also been included.

Virginia Brokaw Gerhardstein is the compiler of the fourth edition of *Dickinson's American Historical Fiction* (Metuchen, N.J., Scarecrow, 1981. 312p. \$15; 3d ed. 1971; *Guide* BD318). This edition lists 2,755 novels, with brief annotations "designed to place the books in historical perspective rather than to make any critical judgment of the quality or the historical accuracy of the writing."—*Pref.*

The *Avery Obituary Index of Architects* (Boston, G. K. Hall, 1980. 530p. \$75) represents a new edition of the *Avery Obituary Index of Architects and Artists* (1963), the change of title stemming from the fact that obituaries of artists have not been indexed since 1960. Begun in 1934, the index cites obituary notices appearing in the approximately 500 periodicals currently indexed in the *Avery Index to Architectural Periodicals* (*Guide* BE58) and in some newspapers (mainly the *New York Times*). In addition, there is back-indexing of obituaries in four leading American architectural periodicals to the dates of their founding, and some retrospective indexing of selected English, French, and German periodicals.

Because it is intended both as companion and continuation of the 1974 compilation (*Suppl.* BG7), the new volume of Gordon Samples' *Drama Scholars' Index to Plays and Filmscripts* (Metuchen, N.J., Scarecrow, 1980. 695p. \$30) has been designated "Volume 2" rather than a supplement. "Indexing for the second volume goes back to the beginning of recorded literature and continues through 1977."—*Introd.* Plan and principles of the work remain the same; a title list of anthologies indexed in both volumes 1 and 2 is included.

Biographical sketches of some 8,200 individual members (both living and deceased) of

the American Society of Composers, Authors and Publishers are included in the fourth edition of the *ASCAP Biographical Dictionary* (New York, Jaques Cattell Pr./Bowker, 1980. 589p. \$43.95). This represents an increase of approximately 3,000 entries over the third edition (1966; *Guide* BH63).

Descriptions of public records, business records, and "artificial collections" (including manuscript volumes and documents acquired singly) make up the second volume of the *Guide to the Manuscripts in the National Maritime Museum* (London, Mansell, 1980. 216p. \$40; v.1 publ. 1977, *Suppl.* CJ171). The two volumes constitute a statement of the Greenwich museum's holdings at the end of the 1970s, and a general index to both volumes is provided in volume 2.

Kraus Reprint has issued a "revised and corrected edition" of Louis John Paetow's *Guide to the Study of Medieval History* (Millwood, N.Y., Kraus, 1980. cxiii, 643p. \$50) "with errata compiled by Gray C. Boyce

and an addendum by Lynn Thorndike." The work is a reprinting of the 1931 edition (*Guide* DA108) with the addition of the errata section (p.xxi-li) and an addendum (p.liii-cxii) of titles of books and articles not cited in previous editions. Items in the latter section are keyed to appropriate sections of the main work. Only works published through 1930 are included since Boyce's supplement covering 1930-75 has just appeared and will be noticed in this column at a later date.

Michael C. Meyer's *Supplement to A Bibliography of United States-Latin American Relations Since 1810* (Lincoln, Univ. of Nebraska Pr., 1979. 193p. \$19.50) is companion to the Trask, Meyer, and Trask volume of similar title published 1968 (*Guide* DB27). The supplement follows the plan of the earlier work and provides cross-references thereto. Of the 3,568 entries, about three-quarters are post-1965 publications, the others being older materials not included in the basic volume.—E.S.

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the Netherlands*

Leiden Botanical Series, vol. 5

This classic key is now available in English and includes updates from four botanists. It covers plant families of the whole world with emphasis on the tropics. The system adopted is mainly that of Engler (as modified by Melchior, 1964, Engler's Syllabus) but many of the "split families" are accepted. As far as possible both "split family" and "lumped family" are keyed out separately.

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Research Notes

This section will appear occasionally. Its purpose is to report the results of selected current research on specific topics. Items included in this section have been reviewed by members of the editorial board.—C.J.S.

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KATHRYN B. WILSON AND JOANNE D. EUSTIS

The Impact of User Frustration on Humanities Research

INTRODUCTION

In an article recently published by *Collection Building*, Paul Metz posed an intriguing question: What is the consequence for scholarly productivity of a researcher's frustration in not finding the information he needs in his own library? Or, stated another way, what happens to potential research projects when scholars are thwarted in their need for quick access to the necessary materials? The emphasis here is not on why the user is frustrated, why the library has failed, or what librarians can do about it. It is instead to look at the effect upon scholarship of that frustration.¹

It is well known that libraries provide inter-library loan service as a means of supplementing local collections. In addition, universities make leave time, sabbaticals, and summer vacations available for pursuing necessary resources. Yet despite these alternatives, there may be a more alarming consequence of frustration resulting from inadequate library holdings. "It may also be," Metz suggests, "that potential research projects which are in their fertile but tentative and fragile early stages are deferred, or worse, abandoned."² Can it be that a research library collection actually has the potential to direct, regulate, or form scholarly research in some way? If this can be proven, then librarians must take another look at their calling. They are not only guardians of the repositories of knowledge but also, through collection development decisions, active agents in the scholarly process. This question inspired two librarians

Kathryn B. Wilson is assistant acquisitions librarian, and Joanne D. Eustis is assistant humanities librarian, University Libraries, Virginia Polytechnic Institute and State University, Blacksburg.

at Virginia Tech to look into the nature of user frustration at their institution.

VIRGINIA TECH

Virginia Polytechnic Institute and State University, a land-grant university, was founded in 1872 as the Virginia Agricultural and Mechanical College. In 1944, the college was renamed Virginia Polytechnic Institute. In 1970, the Virginia legislature voted that VPI, or Virginia Tech, as the university is known, would henceforth legally be called Virginia Polytechnic Institute and State University. The addition of *State University* to the name reflected a new emphasis on liberal arts during the past decade. Nevertheless, the liberal arts faculty has continued to struggle with the legacy of a technical college, as exemplified by the popular nickname Virginia Tech.

As the nature of the university changed, its library was faced with a formidable challenge. With the addition of many more faculty members in the humanities, and the creation of two humanities graduate programs in English and history, the library needed to develop a part of the collection that until 1970 had largely been ignored. Generous appropriations from the state made it possible to carry out the extensive collection development that was necessary.

Humanities programs have been richly supported since 1970, as has the University Libraries book budget. But because of VPI's earlier emphases, humanists think of themselves as the poor relations in the university family. Given this milieu, we selected the humanities faculty as the test for Metz' questions.

METHODOLOGY

We made phone calls to a random sample of humanities faculty members and asked them to reflect on their frustrations in using the library. Their responses were used to design a questionnaire. In October 1979, the questionnaire was sent to faculty in the seven humanities departments in the College of Arts and Sciences: Art and Art History; Performing Arts and Communications; Foreign Languages and Literatures; History; Religion and Philosophy; English; and Humanities (a cross-disciplinary department). All faculty listed in the current faculty-staff directory as members of these departments were included

in the survey. The majority of those surveyed were full-time teaching faculty. Surveys were mailed to 190 faculty members; 99 (52 percent) responded. The survey was analyzed by rank and academic discipline, but these variables did not yield statistically significant differences.

The instrument consisted of twenty-six questions in four categories.* The first set of questions collected basic data for each respondent: position at the university, length of time employed, and academic field. Also included were average time spent working in the library per week and number of articles or books accepted for publication since 1976. In the second set of questions, respondents assessed the University Libraries and the degree to which they fulfilled the perceived needs of undergraduate and graduate students, graduate-level research, and faculty research. The third category consisted of a series of statements of alternatives that a researcher might choose when encountering weaknesses in the library collection. This was the focus of the study. The fourth section asked the respondent to assess the effect upon his/her research of certain problems in library services or physical environment. A final question asked the respondent whether the quantity or quality of his/her research would be improved if the inadequacies of collections, services, or physical environment were corrected. In this last question we were testing whether the researcher perceived a connection between the library and his/her productivity as a scholar.

RESULTS

Our survey produced some curious results. Humanities scholars do perceive a link between the library and their scholarly output, but they generally do not accommodate their research to available resources.

The second set of questions provided us with a sense of how important the library was to the respondent's work and how well the library met his/her needs. Ninety-seven percent of the respondents were affirmative in their response to the statement "A supportive library is most important for successfully conducting my research." The respondents felt

*A copy of the questionnaire and detail on responses to each item are available on request from the author.

that the library adequately served the requirements of undergraduates, but tended to be dissatisfied with the manner in which it fulfilled the needs of graduate students and researchers. They recorded a strong negative response to the statement "The materials in the library are adequate for my own research needs." It appears that the more the researcher expects of the library and the more specific the research requirements, the less the library is perceived as able to satisfy the humanities scholar.

The third set of questions enabled the respondents to indicate what they did when weaknesses in the collection were encountered. Instead of altering the research topic, the typical humanist pursued the needed material through alternate means, such as interlibrary loan and travel. An occasional person redirected or limited the scope of the topic to use available materials, but more frequently the research was postponed, presumably until a time when he/she could travel to wherever the material is located. In general, topics were not completely abandoned. Sixty-one percent indicated they would never, or almost never, drop their topic. Twenty-six percent said that they sometimes would, and 6 percent said that they did so frequently. We concluded that humanities scholars were a persevering lot. Once they had a thesis in mind or a point to prove, they set to work and were not easily deterred.

Since the humanities scholars were not inclined to select or to discard a research topic solely on the basis of strength in the local library collection, the library and the university must make it easy to gain access to materials elsewhere. In this regard, interlibrary loan is crucial for the humanities scholar. The ability to travel to other locations is also important. Seventy-eight percent of our respondents frequently or sometimes used interlibrary loan; 69 percent said they frequently or sometimes traveled to obtain necessary materials. Fewer relied on friends in other locations to provide them with what they need. Until recently, a popular way of securing materials at Virginia Tech has been to place a book order. Money for such orders has been available in the past, but recent budget cutbacks now make this option more difficult.

While the fears Metz expressed in his article were not borne out by the results of our

survey, we were still left with concerns. Eighty-five percent of the respondents said that an adequate library was extremely important for successfully conducting their research. Eighty-one percent said the quantity or quality of their research would improve if certain problems in collection, physical environment, or services were corrected.

The fourth set of questions was based on suggestions about various inadequacies collected during our preliminary telephone survey. At that time, the faculty members consulted felt that the problems were lack of faculty carrels, inadequate control of periodicals, materials on microform, and interlibrary loan. A majority of our written survey respondents then confirmed that these situations did indeed have a negative impact on research. For example, 64 percent said that lack of faculty carrels had a serious effect or offered some problem in their research efforts. Seventy-five percent felt that inadequate control of periodicals, resulting in a not-on-shelf problem, was a significant deterrent. Microforms and interlibrary loan were considered slightly less troublesome. Respondents were not asked to detail the specific problems in these areas, but we might expect them to be of the sort that make the research process cumbersome and contribute to tedious, irritating delays.

Humanities scholars seem to consider physical environment and library services as important to their research as the collection itself. They expect the library to be a place conducive to study. Services such as interlibrary loan, reference, and circulation must be efficient in order to make the routine mechanics of research as smooth and unrestrictive as possible. When this is not the case, their scholarship suffers. On the basis of evidence at our library, the important link between scholarly productivity in the humanities and the library as perceived by the respondents to our survey is not the collection but physical surroundings and services.

HUMANITIES RESEARCH AND LIBRARIES

The results of our survey underscore the conclusions of other studies in humanities scholarship. In his article "Limits of Self-Sufficiency," Richard Chaplin describes the humanist's dilemma:

The humanist has an insatiable appetite for re-

search materials and no one library can satisfy all his needs. The humanist needs everything and anything that has been published, plus large collections of unpublished materials. Most of these exist in copies of one, so the humanist will go to the source rather than have the source brought to him. We can state with certainty that libraries are not self-sufficient for the humanities.³

Our results also concur with the findings of a study conducted in England by Cynthia Corkill and Margaret Mann. In surveying humanists in thirty-five universities, Corkill and Mann found only two people who limited themselves to the resources of their own libraries.⁴ In addition, they found that:

Many people were at pains to point out that they would hardly expect the library to hold the material they needed, as they were working with rare or unique material, or on a subject where the primary materials were necessarily abroad, as for example with historians working on American history.⁵

Keeping in mind that the humanist will never be completely satisfied with a single library's collection, library and university administrators might view shrinking book budgets with an eye toward cutting the humanities budget. The scientist and social

scientist may have more urgent need for current materials, but the humanist generally plans his work around travel. Available university funds might be better spent for the humanities researcher by making leave time more generously available, and not by bolstering an already inadequate library collection. However, an underlying theme in our responses was that while the library failed to provide adequate resources for in-depth humanities scholarship, it had an adequate core collection for teaching and undergraduate research. If funds were decreased, the humanities collection might soon lack the ability to provide even basic secondary sources and materials.

CONCLUSION

The major purpose of the survey was to provide information on the consequence of user frustration among humanities faculty caused by collection inadequacy. The results of our survey indicate that such frustration does exist. However, the lack of a strong humanities collection is not deemed to be an insurmountable impediment to research. Humanities scholars seem to accept this as a

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condition of their disciplines. Most important to this group of scholars is the freedom and encouragement to travel to primary sources

and a comfortable work environment with efficient, effective services in their university library.

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RITA A. SCHERREI AND JUDITH M. CORIN

Allocation of Student Assistance Funding in the Public Service Units of the UCLA Library

As is the case in most academic libraries, the UCLA library depends heavily on student assistance to supplement its regular staff. As is also nearly universally true, money to support student help is never available to the degree that would really satisfy unit and department heads. Since there are twenty-seven separate units of the library that do receive funds to hire students, attempting to allocate to each a fair share of the limited pot is an administrative challenge.

Currently this challenge is met for the seventeen public service branches by a zero-based formula approach that relies on annual data in nine work-related areas. These areas, which are listed below, do not cover every task performed in every unit. However, they are those work areas that are common to most units and that are related to the total work load regardless of the specific ways in which tasks are carried out. The areas are the following:

1. Shelving;
2. Circulation;
3. Volumes added to the collection;
4. Serial titles maintained;

5. Public service points in addition to the circulation and reference desks;

6. Reference activity;

7. Material records entered into CLSI;

8. Patron records entered into CLSI;

9. Online bibliographic searches.

From work-load measurement in these nine areas, full-time equivalent (FTE) employee requirements are determined. A 20 percent factor for management activity and a 6 percent factor for collection development are also included in order to account for the total number of FTEs required to maintain the unit's activities. When the number of regular unit staff is subtracted from this total FTE requirement, the difference is the *desirable* number of FTE students. This number can then be converted to dollars, which in turn is compared with other units' requirements and with the total real money available. Each unit is finally allocated its share based on its percentage of the theoretical or desirable total applied to the real total.

The details of the data collection and calculations follow, as does a discussion of the advantages and disadvantages that have become apparent in the two years that this approach has been utilized.

DATA COLLECTION

Monthly statistics are collected from the li-

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brary units on shelving, circulation, online bibliographic searches, and serial holdings. Volumes added to the collection are reported by unit from the four campus technical processing centers.

Added public service credits are determined by counting reference, reserve, special collection, or other points that are staffed in addition to the ordinary central reference and circulation desks.

Records entered into CLSI are obtained from the two units that use this system for circulation.

CALCULATIONS*

1. Shelving

Each unit has an assigned time weight, based on average measures, for shelving an item. There are four possible weights, and these are ascribed as follows:

1. 0.417 minute—this figure is based on measurement in stacks with elevators, book materials, and no unusual obstacles to "smooth shelving."

2. 0.75 minute—this figure is applied to units with a single shelving obstacle. One example is a unit with two call number sequences, one the LC system and the other a form-based system that was utilized in the early days of the unit.

3. 1.00 minute—this figure, the most common, is used for units with compound shelving difficulties. Examples are stacks with no elevators or materials that need special handling.

4. 1.25 minutes—this figure is employed for only two units, both of which have unusual physical layout problems as well as many special materials.

The total number of items shelved is multiplied by the time factor and then divided by minutes per year worked by an FTE.[†] This yields FTE required for shelving as follows:

$$\text{FTE}_1 = \frac{(\text{items shelved per year}) (\text{minutes per item})}{1.25 \times 10^5 \text{ min per FTE year}}$$

*Sherman Greenstein, formerly the administrative analyst for the UCLA library, developed the concepts for the formulas described in this section.

[†]Hours per year for an FTE is taken as 2,080. Converted to minutes, this is 124,800 or 1.25×10^5 minutes.

2. Circulation

The method of least squares[‡] was applied to circulation data and staffing requirements to accomplish all circulation-related activities, including activities related to reserve materials.¹

The resulting equation was

$$\text{FTE}_2 = \frac{1,003 + .089x}{2,080 \text{ hours per FTE year}}$$

where x = total number of items circulated per year.

The number of FTE resulting from this equation is compared with the number of FTEs required to staff the circulation desk with one person for every hour the library is open. For some of the small units, this latter figure is larger than the formula requirement, and the larger figure is used.

3. Volumes Added

Although the units do not do their own cataloging, there is work load involved in bibliographic searching, filing, and physical preparation for volumes added. Again, the method of least squares was applied, using data on FTE hours required for the tasks and the number of volumes added. The formula was

$$\text{FTE}_3 = \frac{686 + .42y}{2,080 \text{ hours per FTE year}}$$

where y = number of volumes added per year.

4. Serial Titles Maintained

The work load connected with serial maintenance versus number of serials maintained resulted in the following equation when the least squares method was applied.

$$\text{FTE}_4 = \frac{229 + .62y}{2,080 \text{ hours per FTE year}}$$

5. Service Points

Dividing the hours the separate reserve

[‡]The theory and application of the method of least squares can be found in most applied statistics texts. See, for example, chapter 17 of Yule and Kendall (1940) for an extended and classic discussion. In this case the dependent variable was staff hours required as reported by the seventeen units; the independent variable was items circulated as reported by the same units.

rooms, audiovisual centers, etc., are open per year by 2,080 results in the number of FTEs required for these extra stations.

$$\text{FTE}_5 = \frac{\text{hours/years}}{2,080 \text{ hours per FTE year}}$$

6. Reference Activity

For every hour open, a unit is given one hour of reference support except in the cases of the smallest units, where reference queries are initiated at the circulation desk.

$$\text{FTE}_6 = \frac{\text{hours/year}}{2,080 \text{ hours per FTE year}}$$

7. Material Records Entered into CLSI

For the two large units that utilize CLSI, every item record entered into the database increases the allocation by 1.2×10^{-5} FTE. This figure is based on an average entry time of 1.5 minutes per record.

8. Patron Records Entered into CLSI

A time allotment of one minute is assumed for each patron record entered. This represents 8.0×10^{-6} FTE per entry.

9. Online Bibliographic Searches*

For those units that provide their own reference searches, a flat 10 percent of their reference allocation is added to their total: $\text{FTE}_9 = .10 (\text{FTE}_6)$

Once these formulas have been applied, the staffing for each unit can be summarized by the following expression:

$$\text{FTE} = 1.26 \left[\sum_{i=1}^9 \text{FTE}_i \right]$$

where the constant, 1.26, accounts for management (20 percent) and collection development (6 percent).

Finally, since the sum of the units' formula allocations will always be somewhat more or less than the amount of money available for student assistance, each unit's percentage of

the total is calculated. This percentage is then applied to the real dollars available, and this is the amount actually allocated to the unit.

ILLUSTRATION

One medium-sized unit's data, slightly altered, for 1979-80 is shown in table 1. It should be noted that this unit has a shelving time weight of 1.25; it has no extra service points and does not utilize CLSI.

The total calculated public service FTE requirement for this unit is 10.28. When the management and collection development factor is included, the total FTE required is 13.0. This library unit employs four librarians and five library assistants, so the student assistance allocation ideally should supply the equivalent of 4.0 full-time workers. When this FTE requirement is multiplied by the average student FTE salary of \$9,984, this minimum "ideal" allotment is \$39,936. As it turns out, \$39,936 is 6 percent of the total of all units' ideal allocations. For purposes of illustration, if the pot of money available is set at \$900,000, the unit would receive \$36,000 for 1980-81.

ADVANTAGES OF THE FORMULA APPROACH

There is nothing subjective or mysterious about the allocation procedure. The figures on which the allocations are based are public; the formulas have been explained to unit heads. The allocations for all units are published. Public service is emphasized in the formula. There are rewards for good service to patrons (at least as far as these variables can measure service), and it is anticipated that

TABLE 1
ILLUSTRATIVE LIBRARY UNIT
DATA FOR CALCULATION OF
1980-81 STUDENT ASSISTANCE ALLOCATION

Category	1979-80 Statistics	Calculated FTE
1. Items shelved	255,536	2.6
2. Items circulated	80,129	3.9
3. Volumes added	3,039	0.9
4. Serials maintained	2,664	0.9
5. Extra service points	0	0
6. Hours open	3,649	1.8
7. CLSI material records	0	0
8. CLSI patron records	0	0
9. Online searching	yes	0.18

*Online services are growing in the UCLA system. The current approach of adding 10 percent to the reference allocation will be revised once enough units have implemented the services that some reasonable allocation measure can be derived.

when the formula is revised, even more service areas will be included.

Finally, there is the ease of application and of revision. For example, the appropriate least square equations can be recalculated when automation is in force for serials processing without essentially altering the formula.

PROBLEMS WITH THE FORMULA APPROACH

There is currently an oversimplification of the FTE required for reference services. The formula does not take into account the quality of such services or the real quantity of work in units of greatly varying sizes. This area, along with some adjustment for online services, needs refinement.

The allocations are based on the previous year's record of basic services, and hence no expansion is built into the formula. This criticism is really more a function of total funding, since if more money were available than the sum of the basic allocations, every unit would receive a fair share of the excess.

Another problem with the year-to-year ap-

proach, however, is that no allowance is made for artificial peaks and valleys in the work areas. So far this has not been an issue, but it is conceivable that circulation or volume growth could fluctuate abnormally, and this would affect the following year's allocation. Obviously this would be apparent when figures from the preceding year were examined, and adjustments would be made. Theoretically, a running average of data could be used once the formula has been applied for several years.

The allocations depend on the accuracy of the statistics, and in some cases over the two years inaccuracies have been noted. However, these have been due to underreporting and have been corrected as they have been discovered.

The biggest criticism is that the formula does not allow for differences among units. In most cases, it can be safely assumed that the real deviations balance themselves. However, it is true that this is not always the case. In one unit, for example, recordings make up a substantial part of the collection but have not been included in "volumes added"—this

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is an oversight that continued for two years and has only recently been realized. There may be other examples of this type, and they will be corrected as they are uncovered.

CONCLUSION

The formula approach as it is applied here at UCLA can be adapted to other similar academic systems as well as to quite different operations, such as public library systems. It is a fairly simple and straightforward solution to the problem of dispersing funds, and it works well if it is viewed as a dynamic approach that can be changed or modified to

accommodate new information or different tasks.

It is anticipated that the UCLA public services formula will undergo changes after the three-year initial period of its implementation; some of the areas that will be altered have already been mentioned. Down the road is a technical services personnel formula that will be developed after automation is fully established.

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CLIFFORD H. HAKA AND NANCY URSERY

University Faculties and Library Lending Codes: A Survey and Analysis

The concept of holding patrons responsible for the return of books checked out from a collection is basic to libraries. The implementation of this principle is difficult in the case of borrowing privileges for university faculty members.

During the past two years the University of Kansas, Lawrence, has implemented a new lending code that provides for the assessment of penalties on faculty members. The code, although approved through university governance channels, has precipitated furious and continuing debate. Disgruntled faculty members opposed to the code have argued that such penalties are not imposed on their counterparts at other institutions. Believing this not to be the case but failing in an attempt to locate counterevidence, the circulation staff surveyed the ninety-eight members of the Association of Research Libraries that have faculties. The results of the survey are reported below.

In April 1980, the following questionnaire was sent to the ARL academic library members.

Clifford H. Haka is circulation librarian and Nancy Ursery is former circulation supervisor, University of Kansas Libraries, Lawrence.

1. Are faculty members subject to fines for overdue materials?
() Yes () No
2. Are other or additional measures employed to encourage return?
() Yes (If yes, please explain) () No
3. Are faculty members subject to fines for nonresponse to recall notices?
() Yes () No
4. Are other or additional measures employed to encourage response?
() Yes (If yes, please explain) () No
5. If fines are levied, are procedures available to ensure payment?
() Yes (If yes, please explain) () No
6. Are there other cases where penalties or restraints of any sort are levied against faculty?
() Yes (If yes, please explain) () No

Information from eight institutions that had not responded by August 1, 1980, was obtained via telephone, thereby completing the responses for all ninety-eight libraries.

Initial inspection of the completed questionnaires indicated a need for more precise definitions of what constituted positive and negative replies.

Questions 1 and 3—In many instances respondents indicated that a fine was levied for nonreturn of regularly circulating or recalled

materials, but that the fine was canceled if the item was ever returned. A response was therefore counted as positive only if at some time an irrevocable charge was assessed. (In all cases in which the responses were not clear, follow-up telephone inquiries were made.)

Questions 2 and 4—These responses were broken down into the following two categories according to the action taken: (1) some punitive action such as restriction or suspension of borrowing privileges, or the assessment of a replacement book bill; and (2) no punitive action, but typically personal contacts or written reminders only.

Question 5—An affirmative response was scored to this question only if the institution could legally force payment of a penalty by such means as payroll deductions.

Question 6—Aside from one institution that has the power to levy \$25 discretionary fines "on any borrower whose abuse of his privileges is serious enough to warrant it," no additional significant procedures were revealed via this question.

Tabulation of the questionnaire responses provided the following data:

1. Do ARL libraries assess fines to faculty members for overdue materials?

Yes 41 No 57

2. Do the fifty-seven libraries that do not assess fines use other punitive measures to encourage return of overdue materials?

Yes 30 No 27

3. Can the forty-one libraries that assess overdue fines legally force payment?

Yes 19 No 22

4. Do ARL libraries assess fines to faculty members for nonresponse to recalls?

Yes 55 No 43

5. Do the forty-three libraries that do not assess recall fines use other punitive measures to encourage return of recalled materials?

Yes 19 No 24

6. Can the fifty-five libraries that assess recall fines legally force payment?

Yes 24 No 31

In an effort to provide some possible explanation of the division regarding fines, responses were correlated with several descriptive variables. It was first considered that there might be some correlation between library ranking and the assessment of penalties to faculty members. The independent variable was supplied by recoding responses of

the institutions in three groups according to ratings in the *ARL Library Index, 1978-79*.¹ Libraries that use a combination of penalties were placed in the category representing the strongest penalty imposed. Findings are presented in table 1.

High- and low-ranking libraries are less likely to assess regular overdue fines than middle-ranking libraries; however, the assessment of fines for nonreturn of recalls is virtually identical among groups. In all cases, although less pronounced among the middle-ranking libraries, more libraries fine for nonresponse to recalls than for overdue materials. Among high-ranking libraries punitive measures are more often used to facilitate the return of recalled materials than for regular overdue materials, but in the middle- and low-ranking libraries the pattern is different. There are slight increases in the number of middle-ranking libraries that fine and that use no punitive measures for recalls, compared to measures used for overdue materials, with a corresponding decrease in use of punitive measures other than fines. The low-ranking libraries follow this pattern, although the increase in the number that levy fines for recalls compared to overdue is more substantial.

Although typically beyond the administrative control of library personnel, the ability to force payment, with measures such as payroll deduction, can be significant in the effectiveness of fines policies. As indicated in column one of table 1, few high-ranking libraries are provided legal means of forcing payment of recall or regular overdue fines. In sharp contrast, for both overdue and recalled materials, twelve of the middle-ranking libraries levy fines and have legal means to force payment. Approximately half of the low-ranking libraries that levy fines can force payment.

The correlations between library ranking and measures used to encourage the return of overdue or recalled materials provided some general patterns, but did not appear to define, with any great precision, those institutions that fine as compared to those that do not. Therefore, a second descriptive variable, geographic location, was investigated. United States libraries were grouped according to the four United States Census Bureau regions, with Canadian libraries forming a fifth group.² Responses of these subgroups are presented in table 2.

TABLE 1

RESPONSES CORRELATED WITH LIBRARY RANKING

ARL Library Index	Force Payment (Yes / No)	Measures Used for Overdues		No Punitive	Force Payment (Yes / No)	Measures Used for Recalls Other		No Punitive
		Fine	Punitive			Fine	Punitive	
High libraries 1-33	2 / 10	12 (37%)	11 (33%)	10 (30%)	3 / 15	18 (55%)	11 (33%)	4 (12%)
Middle libraries 34-65	12 / 5	17 (53%)	8 (25%)	7 (22%)	12 / 7	19 (59%)	4 (13%)	9 (28%)
Low libraries 66-98	5 / 7	12 (37%)	11 (33%)	10 (30%)	9 / 9	18 (55%)	4 (12%)	11 (33%)

TABLE 2

RESPONSES CORRELATED WITH GEOGRAPHIC REGION

Region	Force Payment (Yes/No)	Measures Used for Overdues		No Punitive	Force Payment (Yes/No)	Measures Used for Recalls Other		No Punitive
		Fine	Punitive			Fine	Punitive	
West	8 / 3	11 (58%)	5 (26%)	3 (16%)	12 / 4	16 (84%)	2 (11%)	1 (5%)
North Central	5 / 3	8 (36%)	10 (46%)	4 (18%)	5 / 6	11 (50%)	8 (36%)	3 (14%)
South	3 / 5	8 (31%)	5 (19%)	13 (50%)	3 / 6	9 (35%)	3 (11%)	14 (54%)
Northeast	2 / 5	7 (32%)	9 (41%)	6 (27%)	3 / 8	11 (50%)	5 (23%)	6 (27%)
Canada	1 / 6	7 (78%)	1 (11%)	1 (11%)	1 / 7	8 (89%)	1 (11%)	0

TABLE 3

RESPONSES CORRELATED WITH TYPE OF INSTITUTION

Type of Institution	Force Payment (Yes / No)	Measures Used for Overdues		No Punitive	Force Payment (Yes / No)	Measures Used for Recalls Other		No Punitive
		Fine	Punitive			Fine	Punitive	
Public, state-supported	16 / 16	32 (48%)	19 (29%)	15 (23%)	19 / 24	43 (65%)	10 (15%)	13 (20%)
Private	3 / 6	9 (28%)	11 (34%)	12 (38%)	5 / 7	12 (38%)	9 (28%)	11 (34%)

A significantly greater percentage of Canadian libraries levy overdue fines than any United States group. Within the United States, the important distinction is between the West, where 58 percent of the libraries levy overdue fines, and the other regions, where only about one-third levy overdue fines. Four of the regions reflect a substantial increase in the percentage that levy recall fines compared to overdue fines. The South is the deviant case here, with only a 4 percent increase.

Among Canadian and western United States libraries there is a definite trend toward the use of punitive measures to facilitate the return of overdue materials. This pattern continues and is more pronounced for nonresponse to recalls. In the North Central and Northeast regions, the trend is toward the use of punitive measures other than fines for overdue materials, with a shift toward the use of fines for nonresponse to recalls. The South has a unique pattern. Half the libraries in this region use no punitive measures to facilitate the return of overdue materials. However, the majority of those that use punitive measures do levy fines. As table 2 indicates, there is a slight increase in both the percentage that use no punitive measures and the percentage that levy fines for recalls, compared to overdue materials.

The regions (four U.S. and Canada) can clearly be ranked according to the ability of libraries to legally force payment of overdue and recall fines. However, there is little similarity between this ranking and the regional patterns discussed above.

Although there do seem to be some regional trends in assessment of penalties to faculty members for overdue and recalled materials, the geographic breakdown does not provide a clear description of libraries that do and do not levy fines or use other punitive measures to facilitate the return of materials. The final attempt to describe the two groups was a breakdown according to the source of funding for the institutions at which the libraries are located. Institutions were classified as public or state-supported and private. The results are displayed in table 3.

Libraries at public or state-supported institutions and libraries at private institutions are clearly divided on the question of assess-

ing penalties to faculty members. Almost half the libraries at public institutions levy fines for overdue materials, while just more than one-fourth of the libraries at private institutions take such action. More libraries in both groups fine for nonresponse to recalls than for overdue materials; however, the increase is much more pronounced at the public-institution libraries. Looking at actual measures used for overdue and recalled materials, two distinct patterns emerge. There is a definite trend toward the use of fines for overdue and recalled materials by libraries at public institutions. Although there is an increase in the use of fines for nonresponse to recalls compared with overdue materials among libraries at private institutions, the overall pattern of these libraries reflects more the use of punitive measures other than fines and of no punitive measures.

The availability of legal measures to force payment of overdue fines for the two groups follows the pattern set above. Half of the public-institution libraries that levy overdue fines can force payment, and one-third of the private institution libraries that levy overdue fines have such measures. Almost half the libraries in both groups that assess recall fines have means to force payment; however, this apparent similarity seems to result more from the increase in the number of libraries at public institutions that levy recall fines without means to force payment than an increase in the number of libraries at private institutions that have means to force payment.

CONCLUSIONS

It is clear from the results of this study that there is ample precedent for the introduction of library penalties against faculty members at ARL institutions—particularly for recalled materials (fifty-five out of ninety-eight) but also for regular circulating materials (forty-one out of ninety-eight). If one adds the libraries that do not fine but take some other punitive action, such as suspending borrowing privileges or issuing replacement book bills, these ratios jump to seventy-one out of ninety-eight for regular circulating materials and seventy-four out of ninety-eight for non-return of recalled materials. The argument heard at Kansas that its faculty is being

uniquely burdened is therefore simply without substance.

In regard to describing which libraries fine and which do not, the most useful variable investigated was the nature of institutional support. State-supported institutions clearly tend toward punitive measures, while privately supported institutions do not.

STEPHEN TONEY

A Cost Database for Branch Library Resource Allocation and Performance Evaluation

A major gap in the knowledge of the management of the Smithsonian Institution Libraries (SIL), as in most libraries, is in the precise allocation of expenditures in terms of library goals. Traditional accounting systems are primarily concerned with expenditures by fund and by type of item purchased, i.e., object class or line item. However, management purposes (by which is meant planning and resource allocation, as opposed to accounting purposes) are better served by knowing: (1) for what organizational goal an expenditure was made; and (2) what users were benefited by an expenditure.

Management Control in Nonprofit Organizations by Anthony and Herzlinger offers a brief survey of accounting methods that illustrates how accounting practices have reflected the increasing importance being placed on the budget as a planning tool, in addition to the budget's traditional role as a request for funds.¹

In effect, planning at the top level consists of making decisions about how resources should be allocated to fulfill the goals of the organization, and modern budgeting methods result in a document that expresses those decisions. A budget resulting from one of these modern methods clearly reflects the priorities of the organization, and thus will probably

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2. United States Bureau of the Census, *Statistical Abstract of the United States* (Washington, D.C.: Govt. Print. Off., 1979), inside front cover.

have resulted from an evaluation of priorities.

The executive branch of the federal government now practices zero-base budgeting, in which all programs are reevaluated each year in terms of the goals of the organization. However, although the Smithsonian designs its budgets using the zero-base method, the method is not reflected in its accounting systems. That is, the accounting systems used by most recipients of federal funds, including the Smithsonian, have only rudimentary capabilities to assign to expenditures the purpose of the expenditure in terms of goals. Accounting reports show expenditures by object class, which are of little use in evaluating the degree of success in fulfilling the goals stated in the budget.

ANALYSIS OF THE PROBLEM

Conversations among the director, the budget officer, and the author established the need to tag each SIL expenditure according to fiscal year, library goal, object class, fund type, fund source, cost center, and benefit center (these items are defined below). The expenditures so tagged could then be manipulated to show total costs by any of these classifications. The most essential of these classifications to the project's purposes were the library goal and the benefit center (i.e., the branch library). Tagging in this detail also enabled cross-tabulations; for example, the expenditures by any branch for fulfilling any goal could be isolated.

Fiscal year was included so that expenditures could be compared from year to year.

Library goal was coded according to a goal classification established as part of SIL's routine annual planning.

Object classes of a high level of detail were judged not to be of interest. Expenditures were broadly coded for the classes (and sub-classes) of: personnel (direct and contracted); library materials (monographs, serials, standing orders, and other); automated services and computer equipment; other equipment; supplies; training; travel; buildings and space; and other.

Fund type showed whether the expenditure was from Smithsonian federal funds, Smithsonian trust funds, or non-Smithsonian funds.

Fund source showed whether the expenditure came from the SIL budget, from the budget of the *benefitor*, or from "other source." (Some Smithsonian units donate services, rent, etc., to the branch libraries that serve them; these units are the *benefitors* of the services of the branch, the branch being the *benefit center*. A gift to the library system as a whole would be coded "other source.")

Cost center is a coded designation for the SIL department or other Smithsonian unit authorizing the expenditure. For example, Cataloging "authorizes" the costs of salaries, OCLC services, etc., for its work. Cataloging might also "authorize" the expenditure of non-SIL funds, as when a cataloging contract is paid for by the *benefitor*.

Benefit center shows where services were received. Since the SIL organization reflects that of the Smithsonian, to say that the branch library serving the Museum of American History is the *benefit center* is to say that the museum itself is the *benefitor*. By this concept, the cost of providing service to each component of the Smithsonian is made clear.

The difference between a cost center and a benefit center may be illustrated this way. If the Cataloging Department buys a typewriter or purchases OCLC services or hires employees, those expenses are assigned to Cataloging as the cost center—the unit incurring the cost. However, the *ultimate* beneficiaries of the typewriter are the SIL users. Thus, in order to determine resource allocation among the user groups, it is useful to allocate proportionally the cost of the type-

writer among them. For practical purposes, benefit centers are the reader services branches of the SIL and certain independent libraries in the Smithsonian.

The cost centers and benefit centers were coded in such a way that breakdowns on several levels were possible. Thus the tag SILR-MNH-ANTH is attached to costs for the Anthropology subbranch of the Museum of Natural History branch of SIL Reader Services division.

METHODOLOGY

Recent rental of a Lanier stand-alone word processor provided the basic method for storing, manipulating, and printing the data. The Lanier can sort records of up to 256 characters on both fixed-length and variable-length fields, can extract records based on certain characteristics, and can print selected records or parts of records. The Lanier also has certain arithmetic functions. For the purposes of the cost database (informally called the costgrid), sorting and column addition were the only special functions used.

For simplicity, a fixed-length record format with fixed-length fields was chosen. Table 1 shows the fields in the record, their positions, their lengths, and their purposes.

Gathering of the Data

Expenditures of the SIL in fiscal year 1979 (FY79) were gathered from Smithsonian accounting reports (for salaries and benefits), from acquisitions accounts (for library materials), and from examination of all SIL purchase orders for FY79. From these sources, each SIL expenditure was tagged, but goals were not assigned to personnel costs at this stage.

For expenditures represented by purchase orders, assigning the goal was easy—shelving supports the goal of physical care of the collections, a binding contract supports the binding goal. We avoid goals like "support research," which is based on someone else's goals, preferring those like "provide reference service" or "perform research," which are based on library goals. A single goal consolidating the whole materials budget, such as "build the library collection," is much easier to work with than trying to determine how many of the materials support reference service, how many the curriculum, etc.

TABLE 1
COSTGRID RECORD FORMAT

Field Order	Field Name	Field Length in Characters	Purpose
1	Fiscal year	2	Fiscal year of expenditure
2	Goal	4	Classification number of library goal that expenditure supported
3	Object class	3	Type of item or service purchased with expenditure
4	Object name	13	Name of item or service purchased with expenditure
5	Fund type and source	2	(See text)
6	Cost center	13	What SI organization or department within the SIL made the expenditure
7	Benefit center	13	What SI organization or department within the SIL benefited from the expenditure
8	Cost	7	The amount of expenditure
9	Source of cost	2	A number that refers to a note of where cost information was gathered from and what adjustments were made

Personnel costs in technical services were also easy to assign to goals. However, the activities of Reader Services staff, at least at SIL, touch on nearly all of SIL's goals. For example, the filing of catalog cards in the branches supports the goal of providing cataloging (at least the way we view it). Therefore, branch staff were asked to provide estimates of how they spent their time. This gave only a very rough idea of cost by goal, but time constraints prevented the thorough recording of activities that was needed.

To identify expenditures for library services by Smithsonian units other than SIL (which had *never* been determined), a questionnaire was sent to the head of each major unit. Only object class and fund type were asked. The year, fund source, and cost center were evident. The benefit center was always the cost center. Breakdown by goal was not attempted for non-SIL expenditures, since those goals govern only the SIL.

Allocation of Indirect Costs

In order to provide a true picture of the cost of serving each component of the Smithsonian, technical services costs had to be apportioned to the branch libraries. This was done on the basis of the amount of work done in each technical service unit for each branch, rather than by a general formula.

In order to be as accurate as possible, each technical service unit was analyzed to identify its major activities; then the records for each activity were used to determine how much of

the work was for each branch library. In some cases, however, allocation of technical services costs was hampered by lack of knowledge of exactly how time is spent. In general, lower-level tasks and automated activities were fairly easy to assign, but planning, for example, was harder. Generalizations were made when needed, small amounts of time were ignored, and analogies were used when possible. Supervisory and administrative time at all levels except the central administration was prorated into the various units.

Costs of the central SIL administration could have been allocated to branch libraries. However, no meaningful way of doing so was discovered.

Certain figures had to be adjusted. For example, since expenditures for OCLC services are for both the cataloging goal and the acquisitions goal (preorder searching), the line in the costgrid for OCLC expenditure (added during examination of the purchase orders) was struck and replaced by two lines, with the OCLC cost for each goal reflected in the line for that goal. Notes were kept of the adjustments made, and coded in the costgrid in the "source of cost" field (see table 1). To illustrate, the resulting two lines were:

```
79 IC2 3 COMPUTER FC SILT-AD SILT-ACQ 10460 7
79 1A 3 COMPUTER FC SILT-AD SILT-BSS 31381 7
```

Thus, SIL spent \$10,460 in FY79 for goal IC2 (acquisitions), for object class 3, *computer* services, of federal funds, from the central libraries budget, authorized by the Assistant Director for SIL Technical Services and

benefiting the Acquisitions department. Likewise \$31,381 benefited the Bibliographic Support Section in fulfilling goal 1A (cataloging). (The number 7 at the end is the "source of cost" field, and refers to note 7.)

This example illustrates another point—that there are several levels of beneficiary. As mentioned before, the costgrid allocates all expenditures except those for central administration to a branch library. But in the example, it appears that a technical services unit is a benefit center. However, this was only a technique for grouping costs into the BSS unit, as a step preliminary to allocating BSS costs to the branch libraries.

Thus it can be seen that the allocation process may have several cycles, but to skip one cycle results in loss of the audit trail and thus loss of information. Unfortunately, the above technique does result in rather more notes than were desired, in order to explain the two levels of cost allocation.

Because of these two levels of allocation, technical services costs appeared twice in the costgrid if an adjustment had not been made. To illustrate: assume that SIL has only three branches, A, B, and C. (These will be coded SILR-A, SILR-B, and SILR-C. The R stands for Reader Services.) Also assume that A gets 50 percent of the effort of the BSS unit, B 30 percent, and C 20 percent. The costgrid then shows, for the OCLC costs discussed above:

79	IC2	3	COMPUTER	FC	SILT-AD	SILT-ACQ	10460	7
79	1A	3	COMPUTER	FC	SILT-AD	SILT-BSS	31381	7
79	1A	3	COMPUTER	FC	SILT-BSS	SILR-A	15691	8
79	1A	3	COMPUTER	FC	SILT-BSS	SILR-B	9414	8
79	1A	3	COMPUTER	FC	SILT-BSS	SILR-C	6276	8

The dollars column now adds up to \$73,222 for OCLC services, rather than the actual \$41,841 spent. This is a result of the two phases of allocation. To correct this, a line was inserted into the costgrid containing a negative amount equal to the amount that would be doubly entered—in this case -31,381.

A final methodological point is that of data integrity. More than 500 lines of data were entered for FY79, and the possibilities of accidental error were great, as with any numerical or coded data. Thus two quantities were carefully checked after each update of the grid. First, the number of lines was calculated by programming the Lanier to print a certain number of lines per page. Second, a total for

expenditures was kept. Each new listing of the grid was compared against the previous, as adjusted with the new data input.

A second technique for checking data integrity, which should be employed for any data-processing project or for any large word-processing project, was to keep a backup diskette with a second copy of the costgrid. After each update to the grid was verified, the old backup was erased and a backup of the new master made. The diskettes were named COSTGRID-MASTER and COSTGRID-BACKUP, and the versions of the grid were named for the date of their creation, e.g., COST800610.

DISCUSSION AND CONCLUSIONS

This paper has attempted to show how libraries can improve their knowledge of resource allocation. At the Smithsonian Institution Libraries, we now have new knowledge of where the money goes. The figures on degree of support given to each branch we are quite confident of; the figures on allocation by library goal are only indicative, not precise.

However, any management information project, even one as rudimentary as that described, is a developmental process. At SIL we now know the general outlines of the territory and can work toward more precise knowledge each year.

It is hoped that several improvements to the database will broaden its usefulness. First among these is to develop the output side of the data. Expenditures are one way to quantify the inputs to the library system (the staff, the materials, etc.). What is needed to discuss library efficiency is a quantification of outputs (reference questions answered, circulations, etc.). If these were added to the database, routine evaluations of *efficiency* could be made.

Of course, efficiency is only part of the effort to measure performance. What is ultimately desired is a means of measuring library *effectiveness*. Then comparisons between branches or between libraries can be meaningful. One way to do this in the context of the costgrid is to modify the measures of quantitative branch output with coefficients of effectiveness for each branch activity. The coefficients might come from an annual study of the branch's effectiveness in performing each of its services. This study would need to

focus on the needs of users in fulfilling their goals, a task notoriously difficult in the library context. Some ideas for pursuing this have been gathered from Lancaster's *Measurement and Evaluation of Library Services*,² and also from the papers presented at the preconference on library effectiveness of the 1980 ALA Annual Conference.³

Two intermediate steps between the purely quantitative efficiency rating and the true effectiveness rating can be imagined. The first might be a quality measure used to adjust the raw quantitative measures of output. The supposition made here is that high-quality output is more effective than low-quality (that is, it better fulfills the library's goals). The quality measure has the advantage

over the true effectiveness measure in that the users' true needs need not be studied, but only the library's products.

The second possible intermediate step in approximating a true effectiveness rating is to employ what has been referred to as the "managerial rating model."⁴ This model adds to the rating formula an assessment of the relative importance of each of the library's products (obviously based on the importance of the library goals). The assessment is usually performed by the director; however, to reflect the diverse user needs in each branch library, a ranking of the product importance by each branch chief could be used to modify further the scores for his or her branch.

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sophistication using an example. (The example comes from technical services, which of course can be rated in ways similar to branch libraries).

The first, or purely quantitative, step would be a formulaic comparison between outputs and inputs, such as:

$$S_1 = \frac{\sum_{i=1}^n a_i x_i}{c}$$

where S_1 = final score; x_i = the quantities of various products completed (titles originally cataloged, copies added, etc.); a_i = a coefficient that expresses the relative effort required for each product (so that one title cataloged is "worth," for scoring purposes, ten copies added (the actual coefficients must be derived from time studies); and c = the cost of the department during the time period under study.

The next step would be to have the outputs of the department evaluated for quality in some way; original cataloging, for example, could be evaluated by recataloging a random sample and comparing the results with the original work. The formula to score this method might be:

$$S_2 = \frac{\sum_{i=1}^n a_i x_i q_i}{c}$$

where q_i = the quality scores (on a one-to-ten scale, a percentage scale, or some other ratio scale).

The next step employs the managerial rating model, in which each product is ranked for importance, again on a ratio scale. The formula might then be:

$$S_3 = \frac{\sum_{i=1}^n a_i x_i q_i r_i}{c}$$

where r_i = the ranking given by the library administration to the relative importance of each product.

To reiterate, none of these formulas have addressed the true effectiveness question, namely whether the user has received the service he or she needs. This is a question almost impossible to answer, since users themselves often cannot express, indeed sometimes do not realize, their information needs.⁵ Solving the problems of such assessment will be the work of years.

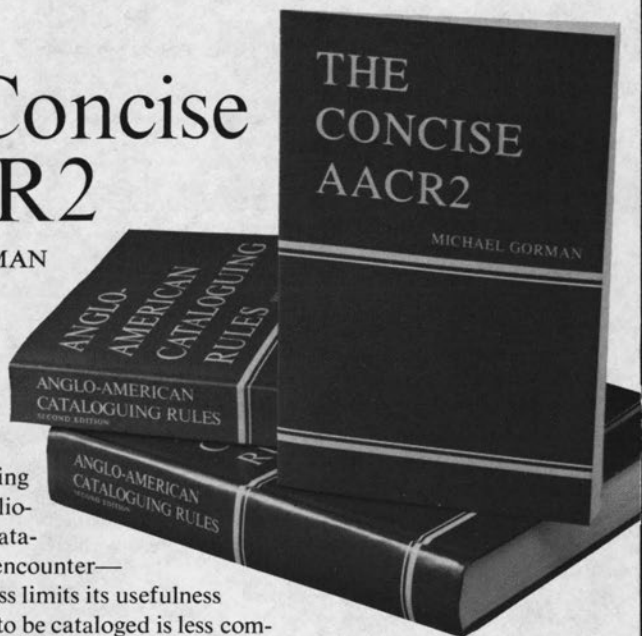
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NOW...

The Concise AACR2

MICHAEL GORMAN



While the original *AACR2*, published in 1979, is a formidable work—covering as it does all the bibliographic situations catalogers are likely to encounter—its very thoroughness limits its usefulness where the material to be cataloged is less complicated or where only the operative principles of the code must be grasped. The latter is the case in teaching, for example.

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176 pages Paper ISBN 0-8389-0325-8 (1981) \$6.50

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Added entry under the heading for Steichen

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Added entry under the heading for Anobile

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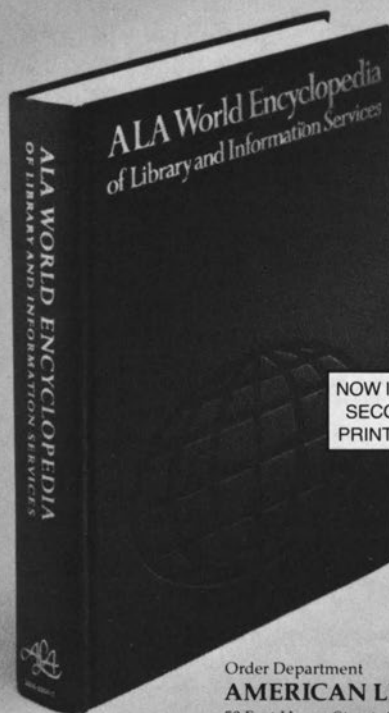
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BOOK REVIEWS

Extended Library Education Programs: Proceedings of a Conference Held at the School of Library Service, Columbia University, 13-14 March 1980. Richard L. Darling and Terry Belanger, eds. New York: School of Library Service, Columbia University, 1980. 150p. \$6 (postpaid). (Available from: School of Library Service, Columbia University, 516 Butler Library, New York, NY 10027.)

As is the case with many professional conferences, the proceedings are doubtless more interesting to those who participated than to those who read them. While we all ought to be concerned about the issues raised at this one, I found the document somewhat disappointing. Those who spoke at the conference are worthy of our respectful attention: Lloyd H. Elliott, the president of George Washington University, Deans Richard Darling, Robert Hayes, Edward Holley, Russell Bid-

lack, Charles D. Churchwell, Katherine H. Packer, and Jane Anne Hannigan. I regret that Robert Taylor and Pauline Atherton were not included.

President Elliott tried to provide the framework in which the papers were presented. What he said was not new to most of us, though he said it well enough. Like most university presidents, he talked from the general which he knew, to the specific of which he knew rather less, but did succeed in reminding his colleagues of the broader issues with which higher education must contend now and in the future.

The conference participants were concerned, properly, with the quality of their students, the training they get, their job opportunities, their salaries, the impact of rapidly changing library practices on them, and what we who hire them do with them and for them. All are legitimate concerns of deans and faculties of library schools.

But the papers as a whole seem to be more

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concerned with the mechanics of library education, and specifically, of course, whether or not library schools should move to two-year programs and, if so, how such programs would improve the individual graduate. I was pleased to learn of their concern for the need for providing research experience, but there seemed to be too little critical, serious discussion about what that should encompass. In view of what passes for research in much of the literature of the profession, this is a serious matter, and I felt a certain impatience with the discussions. I was reminded of Lucy Van Pelt's answer to the old question of how many angels can dance on the head of a pin: "Three if they're fat; six if they're thin." One can count on Lucy, if not always on our colleagues.

By and large, the participants accounted themselves well, but I found myself wondering if the conference was really necessary. As the administrator of a large library system undergoing the trauma of dramatic change (as is increasingly common around the country), I think this distinguished group of men and women might better have spent their time asking whether library education is trying to be all things to all people, whether we have too many library schools, whether we are producing too many librarians, whether we should actively recruit Ph.D.s from other disciplines, whether or not we are stressing the mechanics and housekeeping functions of librarianship too much, and even, perhaps, whether or not the doctorate in librarianship is a defensible degree for those in practice. Fair is fair, they did a bit of this.

Within their agreed-upon charge to themselves, they might have asked us more hard questions: Why do we use librarians in lending-service operations, in reserve rooms, in routine ordering and cataloging of current trade books, or in many administrative positions in our libraries? Will two-year programs give us librarians with computer skills, with sophisticated management skills, and with political skills applicable to academia?

Obviously the time spent on securing a graduate degree does and will affect what is learned, and resolving that may be a necessary first step toward more extensive curriculum revision. If our library schools are simply going to extend the traditional course offerings, with a soupçon of research thrown

in, they will not be addressing the basic problems of either library or information science. At present, leadership in the profession is coming from a few of those in charge of our great research libraries, from the developing networks and consortia, and from the information industry itself, not primarily from the nation's library schools.

Jane Anne Hannigan's summary chapter is perhaps the best part of this document. She asks, both directly and indirectly, many of the questions the participants touched on all too briefly (if at all), one of which I can answer: "Yes, Ms. Hannigan, we are still 'creating serfs to the faculty' of our institutions." In part this is because library education is simply not demanding enough, not tough enough (whatever its length), and in part because we are having to hire those who are not librarians (and pay them more, I might note) to get the work done that is now necessary in academic libraries.

This conference was useful in that this group of men and women publicly began addressing some of the profession's most serious problems, if only by indirection. It was but a tentative first step, and as the Council on Library Resources, and the Association of Research Libraries become increasingly concerned about library education, as they are, we may at last develop the kind of symbiotic relationship we need between academic libraries and the library schools that, to date, has at best existed only in form, not substance. All libraries and librarians will be the better for it.—*Stuart Forth, The Pennsylvania State University, University Park.*

An Information Agenda for the 1980s: Proceedings of a Colloquium, June 27-28, 1980. Ed. by Carlton C. Rochell. Chicago: American Library Assn., 1981. 154p. \$6.50. LC 80-28634. ISBN 0-8389-0336-3.

The Future of the Printed Word: The Impact and Implications of the New Communication Technology. Ed. by Philip Hills. Westport, Conn.: Greenwood, 1981. 172p. \$25. LC 80-1716. ISBN 0-313-22693-8.

Here are two books that command attention because they offer just enough basic information and speculation on some of the forces affecting librarianship to stimulate thought. Foremost is a splendid volume containing the proceedings of the invitational col-

loquium entitled *An Information Agenda for the 1980s*, held at New York University in June 1980 under the auspices of the American Library Association. It brings to the general reader and librarian alike a rich vein of opinion on perceptions of the information issues presumably emerging during this decade. The papers selected for publication include those by Lewis M. Branscomb, Douglas Cater, Benjamin M. Compaine, Robert Wedgeworth, Martin M. Cummings, and Dan Lacy. Especially noteworthy is an excellent introductory essay by Carlton C. Rochell, which highlights and integrates the major elements of the papers and discussions heard at the colloquium.

The advent of information processing on a large scale through electronically based technology raises a host of questions that must be addressed by all segments of society, as well as by leaders in government, communications, education, and library service. For this reason, the publication of these thought-provoking papers serves to identify pertinent issues, which, taken as a whole, outline the potential impact of a fundamental change that society is just beginning to experience. Branscomb aptly describes what might be the scope of such change during the next hundred years in the first paper, "Information: The Ultimate Frontier," and then narrows his focus in "Library Implications of Information Technology." Clarity of expression and keen insight enable him to convey a view of the issues associated with the electronic libraries of the future in a manner that makes them easy to comprehend. Cater treats what could be the central issue of the topic in his paper, "Human Values in the Information Society," when he shifts attention to the possible effects of new technology on mankind. He states, "It is past time that we begin to measure with greater sophistication and then to ponder more deeply the changes in society being wrought by the way we gather, transmit, and employ information. We are already well into this revolution and remarkably few people give systematic thought to its consequences for good or ill."

Compaine's paper, "Shifting Boundaries in the Information Marketplace," summarizes the variety of information systems available now and contemplated during this decade and provides examples of how they may be

used. He identifies and examines five questions: Who will pay? Who will have access? Who will profit? How will conflicts be resolved? and Who will provide what services and under what conditions? Obviously these are fundamental questions and the answers to them are illusive, but Compaine manages to capture the essential elements that should be considered. Wedgeworth and Cummings address some practical everyday matters and relate the focus of discussion to current problems in library service. Lacy's contribution is a strong postscript that reflects a clear awareness of some basic issues. For example, he states that, "Power is at the center of these questions—power: both its effective use and its equitable distribution." One can only nod in agreement after reading the preceding papers.

The second book carries an intriguing title and an outrageous price for such a slim volume of essays. It claims to be "one of the first statements in what is expected to be a continuing debate of increasing importance in the area of the new communications technology." Most of the contributors are British academicians, theoreticians, or librarians, although two Americans are included in the group. They provide the reader with a rather uneven look at a topic that is at once provocative and perplexing. Nevertheless, some of the thirteen essays are worthy of one's time and attention. John M. Strawhorn, Maurice B. Line, Donald W. King, A. J. Meadows, and A. J. Kent all identify issues of substance and avoid dealing with trivial matters. Simply put, "The Future of the Printed Word" addresses the changes that are taking place in forms and methods of communication from traditional print on paper to the electronic transmission of words, while attempting to predict the implications of such change. The central theme is that the electronic dimension may have a profound effect on the dissemination of much of the information that traditionally has been published in ink on paper. How we manage the transition to new forms of communication is the question over which much debate will occur.

Librarians who wish to obtain a good perspective on the potential effects of recent developments in information technology will find these books useful. Of special value is the contribution that ALA and Carlton C. Rochell

have made to the literature of the topic through the publication of the NYU colloquium papers.—*Richard A. Olsen, Rhode Island College, Providence.*

Martin, Susan K. *Library Networks, 1981–82*. White Plains, N.Y.: Knowledge Industry Publications, 1981. 160p. \$29.50; \$24.50 softcover. LC 80-26710. ISBN 0-914236-55-5; 0-914236-66-0 softcover.

Library Networks, 1981–82 is a compendium of information written from the perspective of a professional active in systems planning, development, and implementation and a current member of the Research Libraries Group (RLG). The book comprises eleven chapters, ranging from "Networks for Libraries: An Evolving Resource" to "Implications of Machine-Readable Data" to "Network Organizations" to "Major Efforts" to "Networks and Libraries in the Years Ahead." The book's strength lies primarily in chapters 8, 9, and 10 in which Martin discusses the history of the national network movement, the technological elements of communicating, communications systems, systems analysis, standards, and the administration of libraries in the network environment.

I found the remainder of the book, however, to be sometimes inconsistent, many times in error, often aggravating, and generally failing to reflect the reality of networking that I have experienced in the past ten years.

The most serious problem with the book is Martin's misunderstanding of the nature of OCLC's membership and governance elements. On page 36 (among others) she states that when OCLC changed its organizational structure in 1977 it "became purely a network resource rather than a membership organization." This is simply not true since OCLC's Code of Regulations clearly defines the membership of OCLC as those general members that participate in the OCLC system, outlining their membership in the Users Council and their relationship to the Board of Trustees. Because OCLC continues to be a membership organization, its relationship with libraries is not becoming "more a vendor/customer relationship than a cooperative relationship" (page 36). This is an essential element to be considered when comparing cooperatives, and such error is disturbing in a major work.

Not only is Martin in error in these statements whenever OCLC is used as an example of some network development (and OCLC is the predominant example throughout the book), the nature of the analysis lacks the neutral tones used in describing other networks. While OCLC's longer history may have revealed problems (and solutions) that other cooperative activities have yet to experience, other networks have, in turn, their own strenuous history. One example of inconsistent comparison begins on page 34 in which concerns facing OCLC and RLG are raised. OCLC undergoes rather stern questioning on lack of replicability, lack of authority control, questionable database qualities, inadequate availability of local library data, the regularity of requiring original input cataloging, and delayed implementation of systems. RLG is queried only in the areas of rescheduling the database, the provision of patron access, and the menu of tasks yet to be undertaken. The same sort of stern questions, however, could be asked of RLG; for example, What are the implications of "limited" cooperative activities? Why are many RLG libraries pressing for continued involvement in OCLC? Why do many RLG libraries reportedly use only LC cataloging or that of a few selected libraries when the quality of the RLIN database is supposed to be exceptional? What are the capital problems that have forced institutional loans? Why has the database reconfiguration continually been delayed? What about the manner in which some granting agencies are tying continued grant support to membership in RLG—is this good marketing on RLG's part or something else? And so forth. These are the kinds of hard questions that could have been asked consistently throughout the book of all networking activities but were not. Consistency of comparison would have been especially appropriate in the chapters "Computer Utilities" and "Network Organizations." It would have been more effective in the chapter "Computer Utilities," for example, to delineate the key issues and then specifically compare the policies and practices of all network cooperatives on points such as the following: costs, governance, development schedules, modules, response time, computing equipment, capital availability, standards, duplicate records, and so forth.

In fact, the discussion of "networks" as distinct from "utilities" fails to deal with some of the essential problems and questions that still face administrators: the generation of sufficient capital to operate, the generation of capital to innovate, the difficulties of maintaining adequate training staff, ties to government and governing bodies, the financial and government relationships to utilities, increasing competitiveness among networks, and so forth.

The only chapter that might have spoken directly to such specific problems is chapter 5, "Network Organizations." The information contained here unfortunately reads like publicity blurbs from each of the networks in question, with no analytical assessment or discussion appearing. It is also a minor annoyance to find that while RLG and WLN are included as network organizations, OCLC is not, and neither is its activities in England included in the section "Networks throughout the World." In part, this confusion may result from the lack of specific enough terms for distinguishing networks such as OCLC and RLG from other operations ("utilities" being a

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rather inadequate descriptive term), but it shows the same misunderstanding of the nature of OCLC as a cooperative activity as did the earlier incorrect statement on OCLC's membership.

As a result of not presenting a complete picture of problems facing networks today (such as complexities and developments), when Martin comes to the concluding chapter, "Networks and Libraries in the Years Ahead," she fails to include any mention of the increasingly important networks' competition for decreasing revenues, the implication of the difficulties of initiating development capital, governance in all cooperative activities, network linkage, and the implication of OCLC's recent governance management changes. These factors are as important in the years ahead as the growth of RLG and the diminishing role of the Library of Congress.

In conclusion, while I found many points of interest in this book, the errors of fact about OCLC, the absence of a consistently objective assessment of the major computer-based networks, the lack of analytical discussion of the regional or state networks, and general

unevenness of detail all result in confusion and misunderstanding for the uninformed and frustration for the more experienced.—
D. Kaye Capen, Iowa State University, Ames.

Advances in Librarianship, Volume 10. Ed. by Michael H. Harris. New York: Academic Pr., 1980. 268p. \$23. LC 79-88675. ISBN 0-12-785010-4.

Like recent volumes in this series, this volume of *Advances in Librarianship* is a mixed bag of longer essays on various aspects of contemporary librarianship. Despite the lack of any apparent unifying theme for the series, or the volume, both contain a useful examination of issues and ideas not readily available elsewhere. It is, and perhaps this is its chief virtue, one of the few library publications that offers space for relatively current and somewhat longish essays. It is a series, and a volume, that is difficult to review because of the disparate and uneven nature of the contributions. It is a series that academic librarians should probably examine regularly, and the present volume contains at least three essays of particular interest and value to academic librarians.

Axford's "Academic Library Management Studies: From Games to Leadership" is a critique of management science and the academic library with particular emphasis on the Association of Research Libraries' Office of Management Studies' Management Review and Analysis Program (MRAP) and, to a lesser degree, on the Pittsburgh collection study and the National Enquiry into Scholarly Communication. Like most of Axford's work this essay is provocative. His criticisms of MRAP are well thought out and, on reflection as an MRAP participant, I would agree that "the potential for the MRAP for improving academic library performance seems to be modest at best"; but at the same time I would point out that it has other values, especially in staff development, that Axford fails to recognize. On the other hand, his views that the Pittsburgh study, the National Enquiry, and the development of RLG/RLIN are likely to produce significant changes in the management of academic librarianship are largely speculative and seem somewhat naive.

Young's essay, "And Gladly Teach: Bibliographic Instruction and the Library," is among the few really critical examinations of

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this increasingly popular subject. It is a welcome contrast to the testimonials and the advocacy that constitute so much of the literature of this subject. Young pinpoints "the lack of conceptual definition, spotty research, uneven financial support, and insufficient endorsement outside of the library" as issues deserving particular attention at a time when budgetary constraints make this kind of program especially vulnerable. He offers some interesting and challenging suggestions for those programs.

Lynden's "Library Materials Budgeting in the Private University Library" is perhaps the best of the contributions in this volume. It is an updated version of a somewhat longer report he prepared in 1978 as the outgrowth of a Council on Library Resources fellowship that enabled him to study in detail the library materials budget policies and processes in twelve of the largest private academic university libraries in the United States. While of special interest to those in large private academic libraries, it contains information and ideas that should be of value to us all. It is particularly interesting to note that of all of these libraries Harvard fared best in the 1970s, at least in part because of its careful and accurate study in 1966 of the needs of the future. Lynden suggests the importance of such planning for all academic libraries, although he finds that few studies are currently under way even among these twelve libraries.

Of the remaining three essays only Simon-ton's "AACR 2: Antecedents, Assumptions, Implementation" has much value. It is a good summary of the major issues and directions and offers some thoughtful comments about the future of catalog code revision. Sodd's essay, "Individual Decision Theory: An Overview," like most efforts to interpret the techniques of other fields for librarians, is full of jargon and has little relevance despite his effort to suggest, in conclusion, possible applications to librarianship. Mangla's essay, "Library Education in India, Pakistan, and Bangladesh," which continues a series of articles dealing with library education in other parts of the world, is of very limited interest both because of the content and because it represents only secondary-source material on Pakistan and Bangladesh and is two to three years out of date already.

All in all this is one of the more useful volumes in the series for the academic librarian

and suggests again that the series is at least worth keeping an eye on.—Norman D. Stevens, *University of Connecticut, Storrs.*

Rizzo, John R. *Management for Librarians: Fundamentals and Issues.* Contributions in Librarianship and Information Science, no.33. Westport, Conn.: Greenwood, 1980. 339p. \$35. LC 79-8950. ISBN 0-313-21990-7.

About six years ago, there was little written on management processes for librarians. This problem was particularly acute if you sought a comprehensive treatment geared to graduate students in library science taking a survey course in management. Fortunately, times have changed: there are now a number of books available and several anthologies.

A major impetus behind the increase in text offerings has been the growth of attention paid to librarians as managers as libraries have become more complex. Anything that helps one learn about the management environment of libraries has become attractive. Effective management skills play an important part in the role of the professional librarian, and therefore acquiring those skills is a valued goal among many students. From this perspective, then, we find a new candidate for consideration as the text in a library management course. What does it have to offer?

For starters, it offers a comprehensive set of topics that are relevant to library management, and it does so in a way that is thought-provoking. It suffers somewhat in its moderate use of material derived from the library science literature. It suffers more from its lack of concrete examples to illustrate its theoretical approach to management issues.

Let's look first at the content coverage. The book is divided into thirteen chapters. The first six chapters are concerned with management processes: planning and evaluation, control and organizing. The next seven chapters are devoted to behavioral aspects of management: motivation, group behavior, employee appraisal and training, and leadership.

The chapters are written in a clear style. Important issues are discussed that are not covered in any other library management texts. Chapter 2 on organizational effectiveness and efficiency is particularly noteworthy. It provides the framework within which management activities and responsibilities are ex-

amined. Each chapter closes with some suggested readings, mostly from the organization theory and business literature.

The author, John Rizzo, is currently professor of management at Western Michigan University and editor of the *Journal of Library Administration*. He provides in his preface a brief note stating that this book "is more about management than about libraries." He further points out that "library administrators face concerns all other managers share, regardless of what product or service their organization offers." This statement supports his belief that librarians should start thinking in broader terms than libraries and develop an outlook that includes an understanding of the universalities of management. This is a sound approach.

Many readers will wish that the book had more library-related examples of management concepts. Samples of forms and documents can be enlightening for those who are unfamiliar with concepts discussed. In spite of the lack of such examples, the drawing together of a vast number of management ideas and concepts for a library audience is welcomed.

The reviewer recommends the book to all serious students of library management and suggests that it would make a good text for graduate library science courses when supplemented with other materials.—*Rosemary Ruhig Du Mont, University of Kentucky, Lexington.*

Bender, David R. *Learning Resources and the Instructional Program in Community Colleges*. Hamden, Conn.: Library Professional Pubs., 1980. 295p. \$19.50; \$14.50 paper. LC 80-14567. ISBN 0-208-01754-2; 0-208-01851-4 paper.

Author David Bender, executive director of the Special Libraries Association, brings his previous experience as a consultant and teacher concerned with educational technology and library media to a subject on which he is well qualified to speak. In the foreword, Bender tells his readers, "A major goal of this book is to document the role of the learning resources program and the relationship of media innovations to instructional techniques found in community colleges." While doing the former, his success in meeting the latter half of that goal is rather limited. He has more

successfully produced the "reference tool for community college program planners" he mentions later.

In the introduction, Bender carefully delineates the book's preparatory steps: setting the study's parameters, the population identification, a literature review, the questionnaire construction, data collection, tabulation and analysis of questionnaire responses, the site visits to selected community colleges, and the construction of a set of guidelines and subsequent validation of these statements by a panel of experts.

In his background material Bender deals briefly with the characteristics of the community and junior college. He views community-college planners and developers as educational-change agents. One might desire more explicit application of the work by Ron Havelock on innovation and dissemination to the setting of the learning resources center (or the service functionary by any other name, since Bender goes into some detail on actual designations of media services).

The author's enthusiasm for the community-college learning resources program is obvious: "A learning resources program which is truly part of the college's instructional program will provide for rich inquiry and discovery experiences in support of learning activities. Media are the liberating factor which makes possible the widest sharing of human experiences through the senses as well as through the mind." His study supports his contention well.

While one chapter discusses the fundamentals of staff development and another touches briefly on related research, the heart of the book is Bender's study. The report is well handled and a welcome contribution to the literature. The results are interesting and certainly of value to anyone in the field. For example, twenty-two instructional services are listed and ranked by popularity and the level of usage. Three services reported either light or nonexistent use. The information reveals that LRCs are not tied to traditional library programs; it is evident that their existence depends on their innovative adoption of information services to a particular student/faculty clientele.

The guidelines offered are basic and certainly acceptable. There is little new in this part of the book, but a more structured ap-

proach to many accepted practices is welcome. The seventy-six pages of appendixes add little to the informational value of this work. In fact the community-college profiles of the site-visit locations are so brief they appear bland.

In total, the book is a good survey of current practice. It is an acceptable resource in the field and should be viewed by information practitioners inside and outside of the community college. Many inferences to the profession as a whole can be gained.—*Judith Sessions, Mt. Vernon College, Washington, D.C.*

Boss, Richard W., and Marcum, Deanna B. "The Library Catalog: COM and On-Line Options." *Library Technology Reports* (September–October 1980). Chicago: American Library Assn., 1980. 114p. \$40 single issue. ISSN 0024-2586.

Because many libraries, large and small alike, are currently planning or implementing COM or online catalogs, a *Library Technology Reports* on the subject seems particularly timely. This survey was conducted in mid-1980 and is fundamentally sound and helpful despite some errors and omissions.

Like most *LTRs* this one includes both general theory/practice sections as well as evaluations of specific vendors and their products. Although to those with considerable expertise, the theoretical sections may appear to contain little new information, they are nonetheless lucid and relevant and have the advantage of being available in a single, well-organized volume. "Characteristics of an Ideal Catalog," "Questions about COM Catalogs," "Elements in the Design of an On-Line Catalog," and "A Possible Course of Action" are of particular interest. The bibliography could be longer but serves as a useful guide to the tip of an emerging iceberg.

Because it reflects the expertise and biases of its authors, the report is slanted toward turnkey systems at the expense of other services provided by commercial vendors and those of bibliographic utilities. As a case in point, the introduction contains a list of advantages of the turnkey approach but fails to suggest shortcomings.

It should also be noted that "Evaluation of COM Catalogs" focuses on a few well-known reports while failing to even cite dozens of other valuable articles. Likewise, "Other

On-Line Catalog Planning" overlooks the vital work performed at Ohio State University, University of Illinois, Washington Library Network, et al.

On the practical side, the contention that COM is not economically viable for collections of under 25,000 titles may not ring true to the many smaller libraries that use COM cooperatively for both local catalogs and resource sharing. With the introduction of roll fiche and the enhanced storage of the ROM IV and Dual Track mechanized viewers, the authors' statement that one roll film cannot accommodate more than 100,000 full entries is also refuted. Interestingly, both the Auto-graphics Micromax 800, a pioneering roll-fiche reader, and ROM III are given detailed, positive reviews. (For reviews of other readers and reader-printers consult the March 1980 *LTR*.)

Although the vendor information is generally sound, such statements as "BNA is a relatively new vendor of COM catalogs" (it was one of the first) arouse some suspicion. More troubling is the omission of some vendors, most notably Universal Library Systems of West Vancouver, B.C. Their popular ULISYS system has been used as the basis of an online catalog at Mission College, California, for five years.

In any event this is still a highly recommended guide if used in conjunction with existing literature and information supplied by vendors, utilities, and informed colleagues.—*James R. Dwyer, University of Oregon, Eugene.*

American Library Association. Resources and Technical Services Division. Filing Committee. *ALA Filing Rules*. Chicago: American Library Assn., 1980. 50p. \$3.50. LC 80-22186. ISBN 0-8389-3255-X.

United States. Library of Congress. Processing Services. *Library of Congress Filing Rules*. Washington, D.C.: Library of Congress, 1980. 111p. \$5.00. LC 80-607944. ISBN 0-8444-0347-4.

Both the American Library Association and the Library of Congress recently issued new filing rules after almost a decade of thoughtful and educated work, especially by John C. Rather and Joseph A. Rosenthal.

The two sets of rules have many similarities, including the same ancestor:

John C. Rather's *Filing Arrangement in the Library of Congress Catalogs* (Washington, D.C.: Library of Congress, 1971). Both depart to some degree from Rather and from each other as well. Both have fewer rules than their own previous editions; in both, exceptions are reduced; options are fewer; and both more nearly approach the concept of file "as-is" instead of the hopeless "as-if" technique now often the case. Their similarities can be illustrated by the "principle" (LC) or "objective" (ALA) that "emphasizes" (LC and ALA) the way "a heading looks" (LC) or "character strings look" (ALA) rather than the way they sound: "The inconvenience of having sometimes to look in two places is outweighed by the fact that no special linguistic knowledge is required to find a numeral or an abbreviation when its printed form is known" (LC, p.4 and ALA, p.2).

Both rules tend to ignore punctuation as an organizational factor in filing, a decision that is a major change and a user-oriented improvement. In both cases language is new and more direct. Both have one major set of rules for filing order or the order of characters, with subrules for special cases; and one second set of rules for such things as abbreviations, initial articles, initials, acronyms, romanized letters, and numbers, with the largest emphasis on the special arrangement of numbers. Most numbers, except dates in headings that are arranged chronologically, file before any letters and in number order. Both sets file modified letters using plain English equivalents, and both generally ignore signs and symbols.

Some differences, of course, do exist. The LC rules are more complex, retaining some of the hierarchical arrangements currently found. The hierarchical concept is also present in subarrangements, thus continuing many present difficulties for filers and library patrons. LC's position is that, in larger files, the hierarchical structure makes catalog use easier. (What about smaller files?) The ALA rules eliminate almost all of these arrangements. The LC rules still retain the differentiations, among others, of persons, places, things, and titles. This differentiation in particular is absent in the ALA rules. Subscript and superscript numbers are treated differently in the two rules, with the two sorts of numbers being treated differently in the LC rules themselves.

The differences are less important than the similarities. The rules have appeared in new editions at the same time, with the same emphasis on revision. Clearly, cooperation existed in their development, and whichever set of rules is used, library catalogs will be much more alike than they are now. Libraries using the ALA rules as the basic ones could turn to the LC rules as a source for solutions to more complex problems. The relationship is somewhat similar to that between the concise AACR2 (available in 1981) and the full AACR2.

The ALA rules are neatly and clearly printed. They are also carefully edited; typographical errors seem to be absent. Some questions may arise with clarity, for example, in discussing commas and periods in numbers. The LC rules are produced from typescript that contains a few problems such as the left margin on page 9. Special characters, signs and symbols, some accent marks, key signatures, and subscript and superscript numbers need to be more carefully done, if only for appearance. In the LC rules, one of the principles, as stated on page 5, is to use "no-order" filing for title main and added entries that are similar or the same as other titles, without providing or considering other information. Why, then, in the examples on page 20, is "Journal of education (Easton, Pa.," included as a uniform title, and why is the journal title differentiated by a place of publication?

Pre-AACR2 cataloging rules resulted in entries based on artificial language or on language not found on the pieces being cataloged. These entries were partially responsible for complex filing rules deemed necessary to organize these entries in "logical" order. Logical for whom? Librarians, of course. These entries helped produce the maze that most library catalogs are today, with separate files for different types of entries. When entries are difficult to generate and difficult to file, they are also difficult to locate in catalogs.

The main purpose of AACR2 is to create entries that are in real language, language that will be known by and sought for by library users. Both sets of new filing rules will place these entries where users are more likely to look in catalogs. These rules are far more natural than previous editions. Using

them will make filing easier, a minor point, and make the cards, and consequently library materials, easier to locate. And that is the major point to both of these new codes of filing rules.—Neal L. Edgar, *Kent State University, Kent, Ohio*.

Archivists and Machine-Readable Records. *Proceedings of the Conference on Archival Management of Machine-Readable Records, February 7-10, 1979, Ann Arbor, Michigan.* Ed. by Carolyn L. Geda; Erik W. Austin; and Francis X. Blouin. Chicago: Society of American Archivists, 1980. 248p. ISBN 0-931828-19-8.

Somewhat belatedly, the archival profession has come to accept the fact that machine-readable records represent unparalleled opportunities, both in practical terms related to the control of archival records and as data for scholarly research. Trained in conventional disciplines employing traditional research methodology, archivists often have been unable to exploit the advantages of automated records or to mitigate effectively the problems they present. Professional awareness and comprehension of the subject have been so slight that a recent issue of the *American Archivist* was devoted in its entirety to "Archivists, Archives, and Computers: A Starting Point." In an effort to provide clear definition of the issues and direction for the future, the Conference on Archival Management of Machine-Readable Records was held in early 1979, under the auspices of the University of Michigan. The present volume, published by the Society of American Archivists, is composed primarily of papers read at that conference.

Divided into thematic chapters, *Archivists*

and *Machine-Readable Records* contain papers concerned with research opportunities of and archival programs for automated records, management and dissemination of machine-readable data for social research, recent developments in computer technology, and the ramifications of automated records upon the rights of confidentiality and privacy. Summary papers also are included, one dealing with implications of automated records for conventional archival procedures and the other with the needs and opportunities for training archivists to be conversant with machine-readable records. Although some of the papers apply to archives in general, for example, those treating privacy legislation, software prospects, and computer-based storage technology, the majority concentrate upon social-science data or various aspects of machine-readable records at the state and national levels. Even so, most of the papers are based on principles sufficiently broad to justify a careful reading by the profession at large.

As with any endeavor of this sort, the quality of the papers varies, but in the main they are well thought out, intelligible to those without expertise in the field of automated records, and mercifully free of computer jargon. In addition, each chapter is prefaced by a useful introduction that serves as a summary of the relevant papers. While *Archivists and Machine-Readable Records* does not answer all the questions it raises and leaves others largely unexplored, for example, the physical preservation of automated records, this is a good primer and deserves a wide audience.—Sam Streit, *Brown University, Providence, Rhode Island*.

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ABSTRACTS

The following abstracts are based on those prepared by the ERIC Clearinghouse on Information Resources, School of Education, Syracuse University.

Documents with an ED number here may be ordered in either microfiche (MF) or paper copy (PC) from the ERIC Document Reproduction Service, P.O. Box 190, Arlington, VA 22210. Orders should include ED number, specify format desired, and include payment for document and postage.

Further information on ordering documents and on current postage charges may be obtained from a recent issue of Resources in Education.

Map Study Committee. Final Report. By Bob Heidlage and others. Library, Missouri University, Columbia. 1980. 40p. ED 195 255. MF—\$0.83; PC—\$3.32.

A study undertaken to evaluate the status of the map collections of the University of Missouri, Columbia, is described in this report, and forecasts are made for necessary facilities, equipment, and personnel to accomplish a proposed reorganization and online cataloging of the university's geology and geography map collections. Included in plans for creation of a centralized map unit within the library system are specifications of storage and access space, equipment, and personnel requirements. Statistics for cataloging retrospective and current map materials are derived from processing times and equipment, personnel, and start-up costs. Presented in the report is a policy statement regarding the extent of commitment to preservation work for the map collections. Final recommendations are to (1) begin immediately to catalog all current map acquisitions, (2) establish a central map unit, and (3) prepare a grant proposal for retrospective map cataloging. Supplementary materials include bibliographies on map preservation and map library development, sample processing forms, tables of processing times, and the formula used to calculate yearly work hours.

1980: Prologue to the Future. Minutes of the Meeting of the Association of Research Libraries (96th, Salt Lake City, Utah, May 15-16, 1980). Association of Research Libraries, Washington, D.C. 1980. 159p. ED 195 258. MF—\$0.83; PC—\$10.82.

This report on the proceedings of the 1980 meeting of the Association of Research Libraries (ARL) contains the following papers: "On the Need for a

New Energy Consciousness" by James L. Clayton; "Video: Information Technology of the 80's" by Kenneth Winslow; "Linking Bibliographic Utilities" by Donald A. Smalley; "Preservation" by Pamela W. Darling; "Bibliographic Control of Materials in Microform" by Richard W. Boss; and three views on the future of ARL by David C. Weber, Anne Woodworth, and Jay K. Lucker. Reports on various ARL projects and activities are included. Appendixes provide ARL membership data, the report of the ARL task force on national library network development, the national interlibrary loan code, the auditor's report, and a summary of the Office of Management Studies annual report.

The Foundations of United States Information Policy. A United States Government Submission to the High-Level Conference on Information, Computer and Communications Policy for Economic Cooperation and Development (Paris, France, October 6-8, 1980). By Arthur A. Bushkin and Jane H. Yurow. Department of Commerce, Washington, D.C. 1980. 20p. ED 195 257. MF—\$0.83; PC—\$1.82.

Described in terms of their objectives and their continuing validity and responsiveness to current developments, the United States information policies presented in this paper form the principles upon which the United States generally approaches international information policy issues. The various aspects of U.S. information policy that are discussed fall into two broad categories: the legal foundations of information dissemination and access, and the economics and management of information.

University of California Prototype On-Line Catalog: Preliminary Specifications for the Patron Interface. Working Paper No. 7. By Katharina Klemperer and Mike Berger. University of California, Berkeley. 1980. 62p. ED 195 272. MF—\$0.83; PC—\$4.82.

The online catalog discussed in this report extends the present microfiche union catalog development by providing online access to bibliographic records for the holdings of the University of California Libraries. The specifications for the user interface through which the library patron communicates with the online systems to locate materials are outlined, and the catalog's searching capabilities, display options, user information components, help facility, nonautomated aids, terminals, consultation ability, and evaluation mechanisms are described. The report also examines the design criteria for the patron interface, the human-machine dialogue, the search component,

the help function, the catalog's interlibrary loan function, and its bibliography-building capability.

On-Line Public Access to Library Bibliographic Data Bases: Developments, Issues, and Priorities. Final Report. By Neal K. Kaske and Douglas Ferguson. Ohio College Library Center, Columbus; Research Libraries Group, Branford, Conn. 1980. 70p. ED 195 275. MF—\$0.83; PC—\$6.32.

This report describes project activities designed to identify the critical issues and problems in designing and developing library bibliographic retrieval systems for direct patron use. The results of a survey, an issues analysis paper, and a working session indicate four priority areas for study and action: user and use characteristics, interface characteristics, the library environment, and the computing environment. Recommendations made by the working-session participants highlight the consensus of their concerns—the analysis of user requirements and behavior, the monitoring of existing public access systems, the development of materials for cost management, and the development of distributed computing and system links. A summary and analysis of participant-developed definitions of an online catalog, a summary of exist-

ing and developing systems, and detailed tabulations are appended.

A Report on the State University of New York Budget Development-Preparation Process, with Focus on the Four-Year College Library. By Peter P. Olevnik. State University of New York, College at Brockport. 1979. 24p. ED 195 281. MF—\$0.83; PC not available from EDRS.

This paper provides background information for SUNY librarians, in particular those in the four-year colleges, concerning the budget preparation-implementation process. Included is a step-by-step summary of that process, in the form of timetables illustrating the interrelationships among the executive and legislative units of state government, SUNY Central Office, local campus administration, local campus departments, and other separately funded units; and the relationship between the local campus administration and the local campus library.

Linking the Bibliographic Utilities: Benefits and Costs. Technical Report. By Donald A. Smalley and others. Columbus Laboratories, Battelle Memorial Institute, Colum-

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bus, Ohio. 1980. 314p. ED 195 276. MF—\$0.83; PC—\$19.82.

This study of the benefits, methods, and costs of linking two or more bibliographic utilities for use by public and academic libraries assessed the impact of linking on three distinct areas of library operations: shared cataloging, interlibrary loan, and reference searching. The analysis was restricted to bibliographic records for monographs in OCLC, RLG/RLIN, WLN, and Library of Congress databases. The findings and analyses of data are presented in two parts. The effects of linking on libraries and their patrons are discussed, and detailed analyses of the benefits of linking are provided for each of the three areas studied in the first part. The second focuses on the technical requirements for establishing a link, and three promising alternatives are identified: tape exchange of requested records, online access using the "native mode" of the linked utility, and online access with automatic translation of searches and responses. Requirements for developing each of these alternatives are described and comparisons are made. A summary of conclusions and recommendations concludes the report. Appendixes include supporting data, a glossary, more detailed discussions of several topics, and a summary description of the BIBLINK model. A bibliography and several reference lists are provided.

Linking Bibliographic Data Bases: A Discussion of the Battelle Technical Report. By C. Lee Jones. Council on Library Resources, Inc., Washington, D.C. 1980. 29p. ED 195 274. MF—\$0.83; PC—\$3.32.

This document establishes the context, summarizes the contents, and discusses the Battelle technical report, noting certain constraints of the study. Further steps for the linking of bibliographic databases for use by academic and public libraries are suggested.

Committee on Library Orientation Report to the Directors Council Library Sign System. By Linda Lester and others. University of Virginia, Charlottesville. 1980. 21p. ED 196 452. MF—\$0.83; PC—\$1.82.

This report by the Committee on Library Orientation at the University of Virginia reviews the need for a unified, well-designed sign system to assist users of the university libraries, and discusses the categories and functions of such signs as identified in the relevant literature. A discussion of the current situation at the university and problem areas revealed by a survey of existing signs leads to recommendations for the development of an improved sign system. Specific recommendations are concerned with the types of signs to be used—

orientation, directional, identification (both interior and exterior), conditional and regulatory, instructional and current awareness—and the process of implementation and installation, including services to be provided by a design consultant, priorities for installation, and the provision of an in-house facility for sign production. A list of references and a copy of the survey form for existing signs are attached.

OTHER PUBLICATIONS OF INTEREST TO ACADEMIC LIBRARIANS

Afro-American History: Sources for Research. Ed. by Robert L. Clarke. Washington, D.C.: Howard Univ. Pr., 1981. 250p. \$17.50. LC 80-19197. ISBN 0-88258-018-3.

American Women Writers: A Critical Reference Guide from Colonial Times to the Present, V.3, Li to R. Ed. by Lina Mainiero and Langdon Lynne Faust. New York: Ungar, 1981. 566p. \$50. LC 78-20945. ISBN 0-8044-3151-5.

Annus Notabilis: An Exhibition of Books and Manuscripts at the William Andrews Clark Memorial Library Commemorating the 350th Anniversary of the Birth of John Dryden (1631). Los Angeles: William Andrews Clark Memorial Library, UCLA, 1981. 47p. \$7.50. (Available from: William Andrews Clark Memorial Library, University of California, Los Angeles, 2520 Cimarcon St., Los Angeles, CA 90018.)

L'archivio di Foscolo Lombardi conservato nell'Istituto storico della Resistenza in Toscana inventario a cura di Rosalia Manno Tolu. Firenze: Giunta regionale toscana: La nuova Italia, 1980. 104p. Lire 10,000. (Available from La Nuova Italia Editrice, 50100 Firenze, Casella Postale 183, Italy.)

Arntzen, Etta, and Rainwater, Robert. **Guide to the Literature of Art History.** Chicago: American Library Assn., 1981. 634p. \$75. LC 78-31711. ISBN 0-8389-0263-4.

Available Pay Survey Reports: An Annotated Bibliography. 2d ed. Ed. by Steven Langer. Park Forest, Ill.: Abbott, Langer & Associates, 1980. 517p. in 3v. \$150/set. V.1: *U.S. Pay Surveys (Excluding Those by the Federal Government)*. 321p. \$95. ISBN 0-916506-44-4. V.2: *U.S. Federal Government Pay Surveys*. 116p. \$40. ISBN 0-916506-45-2. V.3: *Non-U.S. Pay Surveys*. 80p. \$45. ISBN 0-916506-46-0.

Biography and Genealogy Master Index: A Consolidated Index to More Than 3,200,000 Biographical Sketches in Over 350 Current and Retrospective Biographical Dictionaries. 2d ed. Ed. by Miranda C. Herbert and Barbara McNeil. Gale Biographical Index Series, no.1. Detroit:

- Gale, 1980. 6,000p. in 8v. \$575/set. ISBN 0-8103-1094-5.
- Bishop, Olga B. *Canadian Official Publications*. New York: Pergamon, 1981. 297p. £17/\$41. LC 80-41572. ISBN 0-08-024697-4.
- Book World Directory of the Arab Countries, Turkey and Iran*. 1st ed. Comp. by Anthony Rudkin and Irene Butcher. Detroit: Gale, 1981. 143p. \$85. ISBN 0-8103-1185-2.
- Bourne, Charles P. *Technology in Support of Library Science and Information Service with Particular Emphasis on Computer-Assisted Reference Service*. Sarada Ranganathan Lectures 12, 1978. Bangalore, India: Sarada Ranganathan Endowment for Library Science, 1980. 78p. Rs. 96/\$12; paper Rs. 128/\$16. (Available from: The Secretary, Sarada Ranganathan Endowment for Library Sciences, 100/1, Fourth Main Rd., 10th Cross, Malleswaram, Bangalore-560 003, India.)
- Buenker, John D.; Greenfield, Gerald Michael; Murin, William J.; and Chudacoff, Howard P. *Urban History: A Guide to Information Sources*. American Government and History Information Guide Series, V.9. Detroit: Gale, 1981. 448p. \$36. LC 80-19643. ISBN 0-8103-1479-7.
- Canadian Books in Print 1980: Author and Title Index*. Ed. by Martha Pluscauskas and Marian

- Butler. Toronto: Univ. of Toronto Pr., 1981. 781p. LC 70-418272. ISBN 0-8020-4582-0. ISSN 0068-8398.
- Canadian Selection: Books and Periodicals for Libraries, 1977-1979 Supplement*. Comp. by Isabel McLean and Edith Jarvi. Toronto: Univ. of Toronto Pr., 1980. 398p. \$27.50. ISBN 0-8020-4593-6.
- Children's Authors and Illustrators: A Guide to Manuscript Collections in United States Research Libraries*. Comp. by James H. Fraser. Phaedrus Bibliographic Series, no.1. New York: K. G. Saur, 1980. 119p. \$14.80. LC 79-24990. ISBN 0-89664-950-4.
- Cordasco, Francesco, and Alloway, David N. *American Ethnic Groups: The European Heritage: A Bibliography of Doctoral Dissertations Completed at American Universities*. Metuchen, N.J.: Scarecrow, 1981. 376p. \$17.50. LC 80-28775. ISBN 0-8108-1405-6.
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- Dictionary Encyclopedia Handbook Review. Volume 1, Number 1, Spring 1981*. Philadelphia: Translation Research Institute, 1981. Published twice yearly (March and September). Annual subscription: \$5. ISSN 0270-3750. First issue 22p. (Available from: Translation Research Institute, 5914 Pulaski Ave., Philadelphia, PA 19144.)
- "The purpose of *DEH Review* is to identify and evaluate English-language references of potential value to translators, bilingual lexicographers, terminologists, and other language specialists."
- Directory of Contemporary American Musical Instrument Makers*. Comp. and ed. by Susan Caust Farrell. Columbia: Univ. of Missouri Pr., 1981. 215p. \$24. LC 80-24924. ISBN 0-8262-0322-1.
- Directory of Illinois Oral History Resources*. Comp. and ed. by Kathryn Wrigley. Springfield, Ill.: Oral History Office, Sangamon State Univ., 1981. 54p. No price. (Available from: Oral History Office, Sangamon State University, Springfield, IL 62708.)
- Directory of Non-Governmental Agricultural Organizations, Set Up at the European Community Level. Sixth Edition, 1980*. Munchen: K. G. Saur, 1980. 402p. \$40. ISBN 3-598-10147-3. (Dist. in the U.S. by Gale Research Co.)
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- McMillan, Patricia, and Kennedy, James. *Library Research Guide to Sociology: Illustrated Search Strategy and Sources*. Library Research Guides, no.5. Ann Arbor, Mich.: Pierian Pr., 1981. 80p. \$12.50/cloth; \$5.95/paper. LC 80-83513. ISBN 0-87650-121-8 cloth; 0-87650-122-6 paper.
- Mexico. Secretaria de Educación Pública. *Directorio de Bibliotecas de la Republica Mexicana. Sexta Edición. Suplemento*. Mexico: La Secretaría, 1980. 588p. No price. ISBN 968-804-250-1. (Address inquiries to: Guadalupe Carrión, Directora de Bibliotecas, Subdirección de Investigación y Desarrollo, Córdoba 23, 3er. piso, Mexico 7, D. F.)
- Natural History Manuscript Resources in the British Isles*. Comp. by Gavin D. R. Bridson, Valerie C. Phillips, and Anthony P. Harvey. New York: Bowker, 1980. 473p. \$245. LC 79-92886. ISBN 0-8352-1281-5.
- New Pseudonyms and Nicknames: First Supplement to Pseudonyms and Nicknames Dictionary*. Issue no.1. Ed. by Jennifer Mossman. Detroit: Gale, 1981. 296p. \$45. two supplements (second supplement ready late 1981). LC 80-29315. ISBN 0-8103-0548-8 (set).
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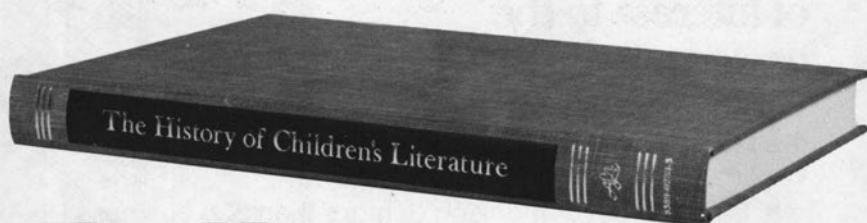
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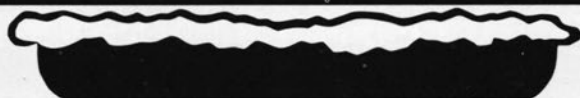


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